

Up by rocket—and walk back! The impressive scene at Vnukovo Airport, Moscow, as Major Yuri Gagarin walks from the plane to meet Mr. Khrushchov and members of his own family.

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SOVIET MAN IN SPACE

SOVIET
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No. 78

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PROPHETIC WORDS . . .

. . . The steel birds find the air increasingly crowded, and this has become possible in our country only at this time when our whole industrious nation, every working man and woman in our Soviet land have all together set out to turn mankind's dream of conquering the heights beyond the clouds into reality. . . .

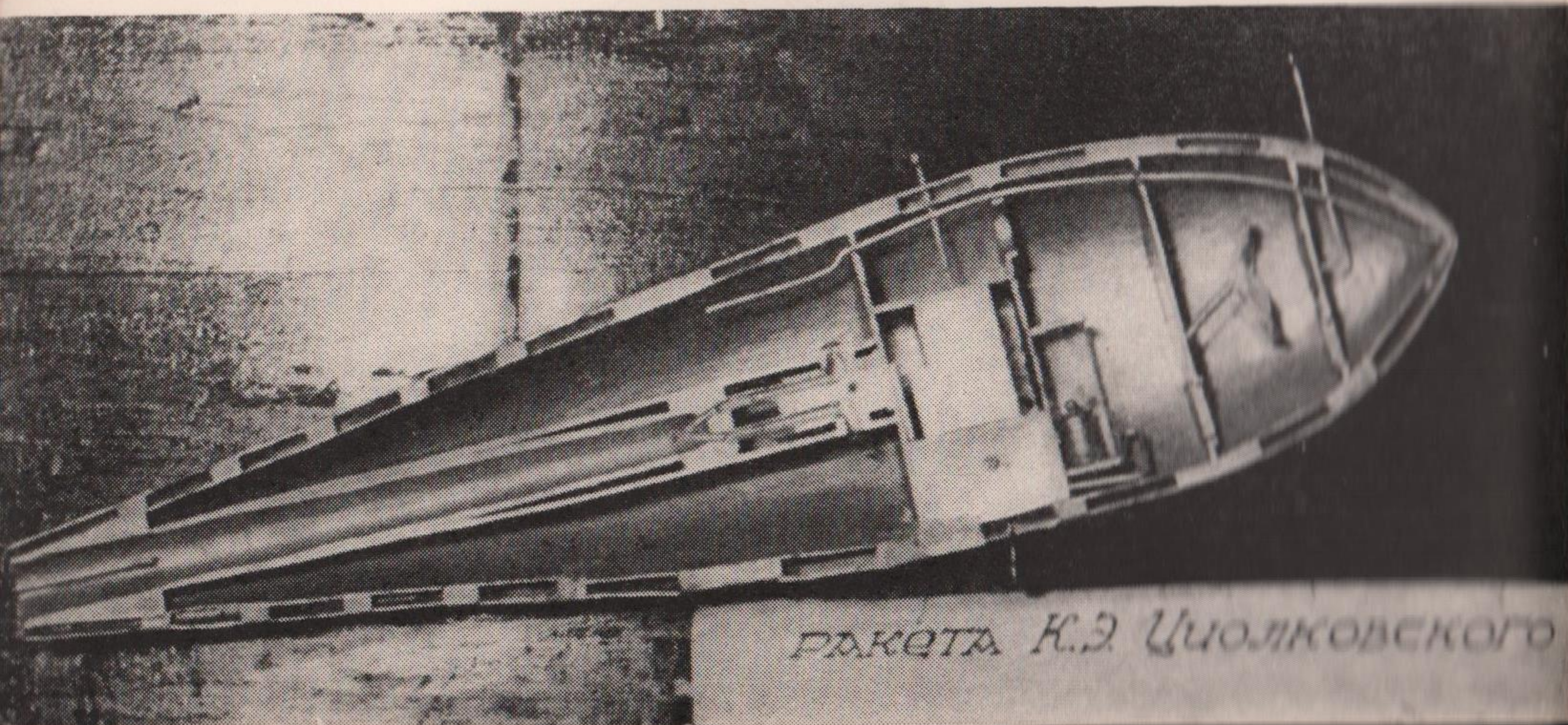
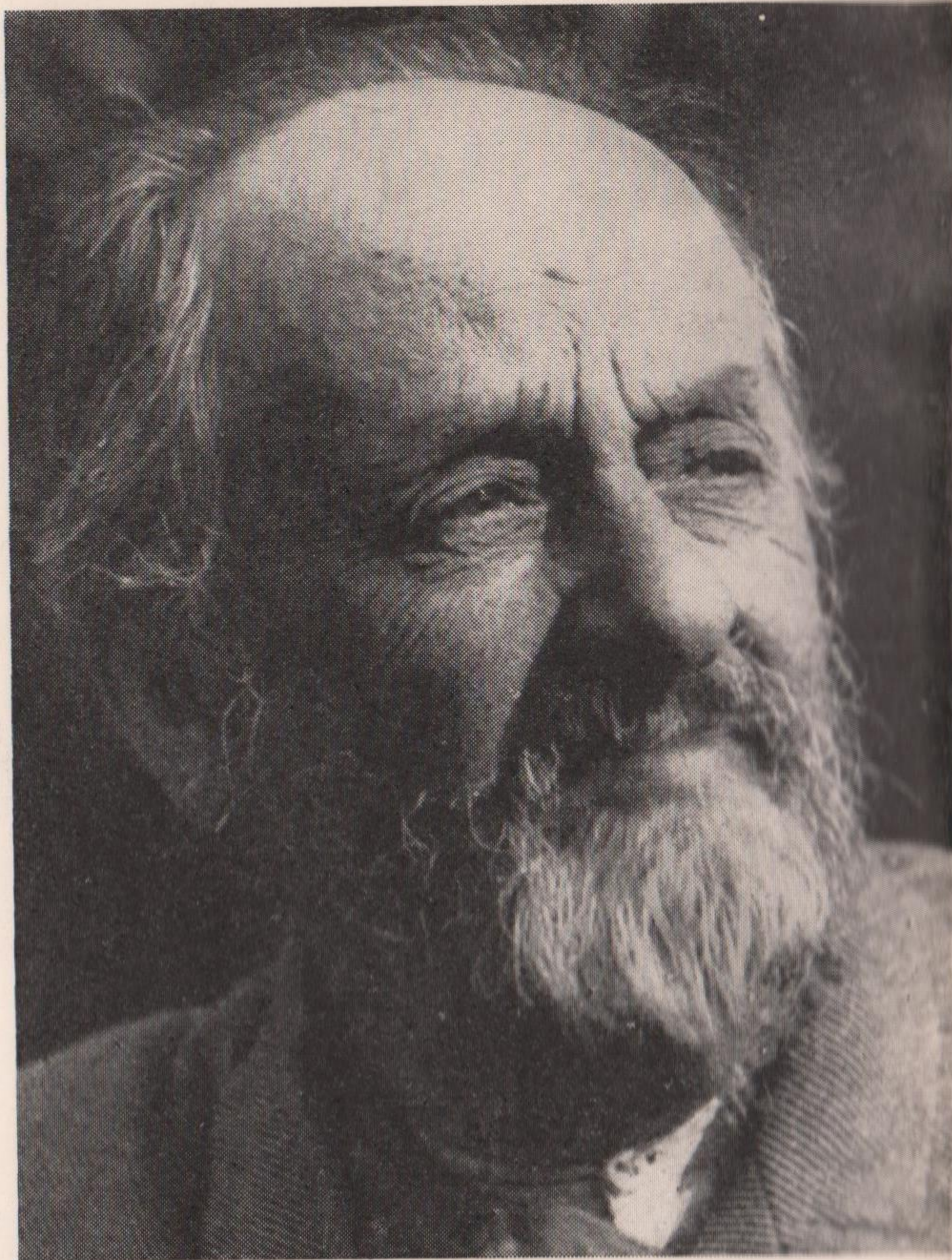
Today I am very certain that my other dream, inter-planetary travel, which I have proved possible theoretically, will also come true.

For forty years I have worked on jet-propelled engines and have thought that it would be several centuries yet before we could take a pleasure trip to Mars. But times are changing. I believe that many of you will witness the first flight beyond the atmosphere. . . .

—From a speech by K. E. Tsiolkovsky recorded in 1933.

Konstantin Tsiolkovsky (1857-1935) was a schoolmaster in Kaluga who became a pioneer in aeronautics, rocketry, and inter-planetary communications research.

His model of a space-ship (below) was made in 1903 and has several points of similarity with the space-ship of April 12th, 1961.



Pass the Books on Please
 Jack Babler

Soviet Man in Space

Yuri Gagarin the first man in space.

Held in the hands in the Soviet Union

March 27, 1968 age 34

His name was Prominent

Went into the APRIL 12 1961

Col. Yuri Gagarin the first man to fly solo across the Atlantic Ocean in the USA APR 1974 A-10

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No. 78

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FOREWORD

Here is the record of the three-and-a-half years of Soviet space research, from Sputnik I to the first manned flight into

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FOREWORD

Here is the record of the three-and-a-half years of Soviet space research, from Sputnik I to the first manned flight into the cosmos.

October 4th, 1957. Sputnik I launched. It weighed 184 lb.—a little over 1½ cwt.—and circled the Earth for about three months.

November 3rd. Only three weeks later, Sputnik II followed the first space satellite into orbit. This second Sputnik was a very much bigger one, weighing half a ton and carrying a passenger—the dog Laika. Sputnik II continued in orbit for five-and-a-half months.

May 15th, 1958. Sputnik III was launched. Considerably bigger still—it weighed over 26 cwt.—this space satellite circled the Earth 10,037 times, completing a journey of more than 278 million miles before it burned up in the atmosphere on April 6th, 1960.

January 2nd, 1959. The Soviet probing of space entered a new period with the first cosmic rocket, which hurtled out past the Moon into orbit round the Sun. This rocket weighed about a ton-and-a-half and is now circling round the Sun once every 450 days. It will continue in this orbit probably for millions of years.

September 12th. The first Moon rocket, weighing about a ton-and-a-half, was fired. It hit the Moon, precisely as planned, within about 125 to 150 miles of the centre of the announced target area.

October 4th. Moon-rocket II, slightly larger, circumnavigated the Moon, taking photographs of its hidden side which were developed aboard the rocket and sent back to Earth by television.

May 15th, 1960. The first space-ship launched. Weighing 4½ tons, it had a cabin carrying a dummy “pilot” and all the equipment necessary for a manned space flight. The cabin itself weighed 2½ tons, and carried about 1½ tons of apparatus.

August 19th. A second space-ship was launched. Roughly the same in size, it carried living passengers this time—two dogs, Strelka and Belka, and a wide variety of other living things. The ship orbited the Earth eighteen times before, after a journey of nearly 435,000 miles, it was safely brought down again at a pre-arranged spot in the U.S.S.R. The dogs and other living things were safe and well—and since then Belka has had a litter of six healthy puppies.

December 1st. A third space-ship, also weighing about $4\frac{1}{2}$ tons and carrying dogs and other living things, was launched. It circled the Earth for two days and then, its research programme completed, was signalled to return to Earth. It did not, however, return along the calculated trajectory and, therefore, burned up in the upper atmosphere.

February 4th, 1961. Sputnik IV was launched. Weighing about $6\frac{1}{2}$ tons, it was much bigger than anything previously orbited. The main purpose of the launching was to achieve the accurate orbiting of such a heavy Sputnik. There were no living things aboard and no attempts were made to land it when its research programme was completed.

February 12th. Another heavy Sputnik was orbited and then a space-rocket was launched from the Sputnik itself in the direction of Venus. This Venus probe weighed about 13 cwt. and was directed very accurately towards Venus, then about 54,500,000 miles from Earth. Regular radio contact was maintained with the probe until February 27th, at which time it was still travelling dead on course. It is still hoped that radio contact may be re-established when the probe reaches the area of Venus. It will be passing in the vicinity of Venus on May 19th to 20th.

March 9th. A fourth space-ship, Vostok, was sent up. Weighing over $4\frac{1}{2}$ tons, it carried a dog, Chernushka, and other living things. After orbiting successfully it was brought back to Earth at a pre-arranged spot on the same day. Its passengers were fit and well. Main object of the launching was the further improvement of space-ship design and equipment, to ensure the conditions for man's flight into space.

March 25th. The Vostok, again carrying a dog, Zvezdochka, and other living things—was sent into orbit and landed again successfully on the same day.

April 12th, 1961. In the sixth Soviet space-ship, Major Yuri Gagarin successfully completed the first manned space flight, orbiting the Earth at 18,000 m.p.h., at a distance ranging from $112\frac{1}{2}$ to 203 miles.

A Remarkable Landmark in the Development of Mankind

**TO THE COMMUNIST PARTY AND THE PEOPLES
OF THE SOVIET UNION!**

**TO THE PEOPLES AND GOVERNMENTS OF
ALL COUNTRIES!**

TO THE WHOLE OF PROGRESSIVE MANKIND!

A P P E A L

**of the Central Committee of the Communist Party of
the Soviet Union, the Presidium of the U.S.S.R.
Supreme Soviet, and the Government of the Soviet
Union.**

A GREAT event has occurred. Man has made a space flight for the first time in history. . . . An orbital space-ship, *Vostok*, with a man on board, took off on April 12th, 1961, at 9.07 a.m., Moscow time, flew around the globe and returned safely to the sacred soil of our country, the land of the Soviets.

The first person to penetrate into outer space is a Soviet man, a citizen of the Union of Soviet Socialist Republics!

This is an unparalleled victory of man over the forces of nature, the greatest achievement of science and engineering, a triumph of human thought. The beginning of manned space flight has been made.

The genius of the Soviet people and the vast power of socialism are embodied in this exploit, which will go down in history.

With feelings of great joy and legitimate pride the Central Committee of the Communist Party, the Presidium of the U.S.S.R. Supreme Soviet and the Soviet Government note that this new era in the progressive development of humankind has been opened by our country, a country of victorious socialism.

Tsarist Russia with its backwardness could not even dream of accomplishing such feats in the struggle for progress or in competing with more technically and economically advanced countries.

By the will of the working class, by the will of the people inspired by the Communist Party, led by Lenin, our country turned into a mighty socialist power and achieved unprecedented heights in the development of science and technology.

When the working class took power into their hands in October 1917, many people, including those who were honest, doubted whether the working class would be able to govern the country and to preserve at least the achieved level of development in economy, science and engineering.

The working class, the Soviet collective farm peasantry, the Soviet intelligentsia, the entire Soviet people are now showing the whole world a remarkable success of science and engineering. Our country has gone ahead of all other states in the world and is the first to blaze the trail into outer space.

The Soviet Union was the first to fire an intercontinental ballistic rocket, it was the first to launch an artificial Earth satellite, it was the first to send a space-probe to the Moon, it created the first artificial satellite of the Sun, and dispatched a space-ship towards Venus. Soviet orbital space-ships with living creatures on board carried out flights in space and returned to Earth one after another.

Our victories in the conquest of outer space are crowned by the triumphant flight of a Soviet man in a space-ship around the Earth.

Honour and glory to the working class, the Soviet peasantry, the Soviet intelligentsia, the whole Soviet people!

Honour and glory to the Soviet scientists, engineers, and technicians, the creators of the space-ship!

Honour and glory to the first cosmonaut, Comrade Yury Alexeyevich Gagarin, the pioneer of space research!

The honour of being the first to penetrate into outer space has fallen to us, Soviet people, who are building communism. We regard the victories in space exploration as being not only the achievements of our people, but of the whole of mankind as well. We gladly place them at the service of all peoples in the name of progress, happiness, and well-being of all people on Earth. We place our accomplishments and discoveries at the service of the peace and security of the peoples, not at the service of war.

The development of science and technology presents boundless opportunities for the mastering of the forces of nature and their use for the good of man. For this, peace must be ensured in the first place.

On this great occasion we once again address to the peoples and governments of all countries our appeal for peace.

Let all people, irrespective of race or nationality, colour, religious

creed or social status, spare no efforts to ensure a lasting world peace. Let us put an end to the arms drive! Let us carry out general and complete disarmament under strict international control! This will be a decisive contribution to the sacred cause of peace.

The glorious victory of our country inspires all Soviet people to new deeds in the construction of communism.

Forward to new triumphs in the name of peace, progress, and the happiness of humanity!

*The Central Committee of the Communist Party of
the Soviet Union*

The Presidium of the U.S.S.R. Supreme Soviet

*The Council of Ministers of the Union of Soviet
Socialist Republics*

The Kremlin, Moscow
April 12th, 1961

**TO MAJOR YURI ALEXEYEVICH GAGARIN,
THE SOVIET SPACE PILOT WHO HAS MADE
THE WORLD'S FIRST FLIGHT IN OUTER SPACE**

DEAR YURI ALEXEYEVICH: It gives me great joy to congratulate you warmly upon your spectacular heroic feat, the first space-flight aboard the orbital ship *Vostok*.

All Soviet people admire your glorious feat which will be remembered for ages to come as an example of courage, valour and heroism in the service of mankind.

The flight accomplished by you opens a new page in the history of mankind, in the conquest of outer space, and fills the hearts of Soviet people with great joy and pride for their socialist country.

My heartfelt congratulations upon your safe return from your space voyage to our native soil. Here is a big hug till we meet shortly in Moscow.

N. S. KHRUSHCHOV

April 12th, 1961

**To all scientists, engineers, technicians and workers,
to all collectives and organisations who took part in the
successful implementation of the world's first space
flight of man in the orbital space-ship "Vostok".**

**To the First Soviet Cosmonaut, Comrade Yuri
Alexeyevich Gagarin.**

DEAR COMRADES, FRIENDS AND FELLOW-COUNTRYMEN! The peoples of our country are experiencing a happy, stirring event. On April 12th, 1961, for the first time in the history of mankind, our country, the Union of Soviet Socialist Republics, carried out the successful manned flight of the orbital space-ship *Vostok*.

The flight of a Soviet man in outer space is an outstanding accomplishment of our people's creative genius, a result of the free, inspired work of Soviet people, the builders of communism. The dream of celebrated representatives of Russian and world science and technology of the past, the dream to which Konstantin Eduardovich Tsiolkovsky, that great son of our people, devoted his life, has come true in our heroic days. This is a tremendous contribution of the Soviet people to the treasury of world science and culture. Mankind will hail with gratitude this unparalleled accomplishment of the Soviet Union. The heroic flight of a Soviet man in outer space ushers in a new era in world history. Man's age-old dream has come true.

The Central Committee of the Communist Party of the Soviet Union, the Presidium of the U.S.S.R. Supreme Soviet and the Council of Ministers of the U.S.S.R., on behalf of our glorious Communist Party, the Soviet Government, and all the peoples of the Soviet Union, warmly congratulate all the scientists, designers, technicians and workers, all the collectives and organisations that took part in the successful implementation of the world's first space flight of man, on that great triumph of human thought and effort.

We warmly greet and congratulate you, our dear Comrade Yuri Alexeyevich Gagarin, on your outstanding exploit, the first flight in outer space.

Our free, talented and industrious people, led in October 1917 by the Communist Party under Vladimir Ilyich Lenin, the great leader and teacher of the working people of the whole world, to the conscious making of history, demonstrate now to the world the great advantages of the new, socialist system in all spheres of life of society.

Manned space flight has come as a result of the successful implementation of the stupendous programme of all-out communist construction, the unflinching concern of the Communist Party and its Leninist

Central Committee and the Soviet Government headed by Nikita Sergeevich Khrushchov for the steady progress of science, technology and culture, for the good of the Soviet people.

Less than four years separate the launching of the world's first Soviet artificial Earth satellite and the successful flight of man in outer space.

By their persistent, selfless work Soviet scientists, engineers, technicians and workers have shown human genius the road to the confines of the Universe. And they have done this in the name of peace on Earth, in the name of the happiness of all peoples.

The first flight of man in space will be a source of new inspiration and daring for all Soviet people in the name of further progress and world peace.

Glory to Soviet scientists, designers, engineers, technicians and workers, the conquerors of outer space!

Glory to our people, our people of creators, our people of victors, blazing under the leadership of the Communist Party, the trail to communism, the bright future of the whole of mankind!

Long live the glorious Communist Party of the Soviet Union, the great inspirer and organiser of all the victories of the Soviet people!

Long live communism!

*Central Committee of the C.P.S.U.
Presidium of the U.S.S.R. Supreme Soviet
Council of Ministers of the U.S.S.R.*

N. S. KHRUSHCHOV TALKS WITH FIRST COSMONAUT

COMRADE N. S. KHRUSHCHOV, First Secretary of the C.P.S.U. Central Committee and Chairman of the U.S.S.R. Council of Ministers, who is currently staying near Sochi, throughout April 12th followed with unabated attention the preparations and the launching of the orbital space-ship *Vostok* and the flight of Yuri Gagarin, the world's first cosmonaut and pioneer of space conquest, citizen of the Soviet Union, airman and member of the Communist Party.

Soon after the report of the safe completion of the first space flight and Yuri Gagarin's landing in the designated area, at 1 p.m. Moscow

time, a telephone talk took place between him and N. S. Khrushchov. N. S. Khrushchov was told that Yuri Gagarin wished to speak with him.

"I shall be very pleased to talk to comrade Gagarin," Khrushchov said.

Taking the telephone receiver Nikita Sergeyevich said:

"I am glad to hear you, dear Yuri Alexeyevich."

Y. A. GAGARIN: "I have just received your telegram of greetings in which you congratulate me on the successful completion of the world's first space trip. I cordially thank you, Nikita Sergeyevich, for this congratulation. I am happy to report to you that the first space flight was a success."

N. S. KHRUSHCHOV: "I warmly greet and congratulate you, dear Yuri Alexeyevich! You are the first man in the world to have travelled in space. With your exploit you have glorified our country, showed courage and heroism in carrying out such an important task. With your exploit you have immortalised yourself as the first person to penetrate into space.

"Tell me, Yuri Alexeyevich, how did you feel in flight? How did this first space flight proceed?"

Y. A. GAGARIN: "I felt well. The flight was most successful. All the instruments of the space-ship worked faultlessly. During the flight I could see the Earth from the great height. I could see the seas, mountains, big cities, rivers and forests."

N. S. KHRUSHCHOV: "Can one say that you felt well?"

Y. A. GAGARIN: "That is right, Nikita Sergeyevich. I felt fine in the space-ship, quite at home. I thank you once again for your kind congratulation and wishes on the successful flight."

N. S. KHRUSHCHOV: "I am glad to hear your voice and greet you. I shall be happy to meet you in Moscow. Together with you, with the whole people, we shall celebrate this great exploit in the conquest of space. Let the whole world see what our country is capable of, what our great people and our Soviet science can do."

Y. A. GAGARIN: "Let all countries catch up with us now!"

N. S. KHRUSHCHOV: "Quite right! I am glad to hear your voice sound so cheerful and confident, that you are in such high spirits! You are quite right: let the capitalist countries catch up with our country, which has blazed the trail into outer space and sent up the world's first astronaut. We are all proud of this great victory.

"Anastas Ivanovich Mikoyan is present here. He sends you his congratulations and best wishes."

Y. A. GAGARIN: "Please convey my thanks and best wishes to Anastas Ivanovich!"

N. S. KHRUSHCHOV: "Yuri Alexeyevich, have you got a wife and children?"

Y. A. GAGARIN: "Yes, I have a wife, Valentina Ivanovna, and two daughters, Lena and Galya."

N. S. KHRUSHCHOV: "And did your wife know that you were to fly into outer space?"

Y. A. GAGARIN: "Yes, she did, Nikita Sergeyevich."

N. S. KHRUSHCHOV: "Give my best regards to your wife and children. Let your daughters grow up and be proud of their father who performed such a great deed in the name of our Soviet country."

Y. A. GAGARIN: "Thank you, Nikita Sergeyevich. I shall convey your greetings and will remember forever your kind words."

N. S. KHRUSHCHOV: "Are your parents, your mother and father alive? Where are they now and what are they doing?"

Y. A. GAGARIN: "My mother and father are alive. They live in Smolensk Region."

N. S. KHRUSHCHOV: "Congratulate your father and mother on my behalf. They can be proud of their son who performed such a great exploit."

Y. A. GAGARIN: "Thanks very much, Nikita Sergeyevich. I'll convey your words to father and mother. They will be happy and grateful to you, to our Party and the Soviet Government."

N. S. KHRUSHCHOV: "Not only your parents but our entire Soviet country is proud of your great deed, Yuri Alexeyevich. You have performed an exploit which will live through the ages.

"I congratulate you once again with all my heart on the successful completion of the first space flight. I wish you all the best. Goodbye, till we meet soon in Moscow."

Y. A. GAGARIN: "Thanks, Nikita Sergeyevich. Once again I thank you, our own Communist Party and the Soviet Government for the great trust shown to me. I assure you that I shall always be ready to carry out any assignment of our Soviet country. Goodbye, dear Nikita Sergeyevich!"

This is How it Happened

TASS ANNOUNCEMENT ON WORLD'S FIRST MANNED SPACE FLIGHT

ON APRIL 12TH, 1961, the world's first manned spaceship-sputnik, *Vostok* (East), was launched in the Soviet Union into orbit around the Earth.

The pilot and astronaut of the orbital spaceship *Vostok* is Major Yuri Alexeyevich Gagarin of the Air Force, a citizen of the Union of Soviet Socialist Republics.

The launching of the multi-stage space-rocket was successful. After attaining orbital velocity and separating from the last stage of the carrier-rocket, the space-ship swung into free flight round the Earth.

According to preliminary estimates, its orbital period is 89.1 minutes. The orbit's perigee is 175 km. (108½ miles) and apogee 302 km. (187½ miles); the orbital plane is inclined at 65 degrees 4 minutes to the equatorial plane.

The space-ship, together with the cosmonaut, weighs a total of 4,725 kg. (nearly 4¾ tons), exclusive of the weight of the carrier-rocket's final stage.

Two-way radio-communication has been established and is being maintained with Comrade Gagarin, the cosmonaut. The ship-borne shortwave transmitters operate on 9.019 Mc/s. and 20.006 Mc/s. and in the ultra-shortwave range on 143.625 Mc/s. Radio-telemetry and TV observations of the state of the cosmonaut in flight are being conducted.

Comrade Gagarin, the cosmonaut, withstood satisfactorily the take-off and projection into orbit and is now feeling well. The life-supporting systems in the cabin of the space-ship are functioning normally.

The space-ship *Vostok*, carrying the cosmonaut Comrade Gagarin, continues in orbit.

MESSAGES FROM THE SPACE-SHIP "VOSTOK"

9.52 Moscow time

Flying over South America, Major Gagarin, the space pilot, reported from the space-ship *Vostok*: "Flight proceeds normally. Feel well."

10.15 a.m. Moscow time

Flying over Africa, Major Gagarin reports: "Flight proceeds normally; stand weightlessness well."

10.25 a.m. Moscow time

After the spaceship had flown around the Earth in keeping with the prescribed programme, the braking rocket was fired, and the space-ship carrying Major Gagarin began the descent from orbit for a landing in a pre-arranged area inside the Soviet Union.

MAN SAFELY BACK FROM FIRST SPACE FLIGHT

After the research and flight programme had been completed, the Soviet space-ship *Vostok* landed safely in a pre-arranged area inside the Soviet Union at 10.55 a.m. Moscow time, on April 12th, 1961.

When he had landed, Major Gagarin said: "Please report to the Party, Government and personally to Nikita Sergeevich Khrushchov that the landing was successful, I feel well and have no injuries or bruises."

Y. GAGARIN'S REPORTS FROM ABOARD THE SPACE-SHIP

IN ITS evening news broadcast at 7 p.m. on April 12th, Moscow Radio transmitted the voice of the first Soviet cosmonaut recorded on tape.

In the historic moments when *Vostok*, the space-ship with Yuri Alexeyevich Gagarin, the first human space traveller, was in flight over our planet, two-way radio communications were established between the Earth and the space-ship. Comrade Gagarin reported to the Earth his condition and the progress of the flight.

The following are the reports made by the Soviet cosmonaut during the brief radio contacts:

"I can see the Earth. Visibility is good. Can hear you excellently."

Some time later a new report followed from outer space:

"Flight proceeds well. I can see the Earth. Visibility is good. . . . I can see everything. Some of the space below is overcast with cumuli."

Gagarin's next report ran:

"I am continuing in flight. Everything is normal. Instruments are functioning excellently. Everything is in good order. My flight is progressing."

Then came still another report:

"Feeling fine. My spirits are high. I am continuing in flight. Everything goes well. The machine functions normally."

These laconic reports full of calm and confidence have already gone down in history. They will always remain a testimony to Soviet man's great victory over the cosmos.

YURI GAGARIN INTERVIEWED

Yuri Gagarin gave the following interview to an "Izvestia" correspondent on April 13th, 1961.

Question: How did you feel before boarding the space-ship?

Answer: Before boarding the spaceship I felt extremely happy. I was proud to be entrusted with that first space flight. At the same time I realised the great responsibility for this flight in space, where there is so much unknown. I felt proud of the people who have created such mighty vehicles capable of boosting man into outer space.

Question: What were your thoughts during the flight?

Answer: All my thoughts and senses were concentrated on carrying out the flight programme. I wanted to fulfil every single item of my task as perfectly as possible. There was a lot of work to do and the whole flight was work.

Question: What were your sensations when the feeling of weight began to disappear after the launching and when it began to reappear?

Answer: I felt fine when weightlessness set in. It became easier to do everything. This is natural. Your hands and feet weigh nothing. Things floated in the air. And I myself was no longer seated in my chair as before but floated in the air. I ate and drank in weightlessness and everything was just as on Earth. I worked and I wrote down my observations. My handwriting was the same although my hand weighed nothing. Only I had to hold down the notebook so that it wouldn't float out from under my hand. I kept up communications

through various channels. I used the telegraph key. I found that weightlessness did not affect my working ability in any way. The transition from weightlessness to gravity and the appearance of gravitation was gradual. My hands and feet felt the same as in zero-gravity, only they began to weigh something. And I myself no longer floated above the chair but regained my seat in it.

Question: What did the daylight and night sides of the Earth look like? What did the sky, Sun, Moon and stars look like?

Answer: The daylight side of the Earth could be seen very well from the height. I could discern the coasts of the continents, islands, big rivers, big reservoirs of water and folds of the relief. Flying over our land I could clearly see the large squares of collective-farm fields and could distinguish between ploughed fields and meadows. I have never before flown higher than 15,000 metres. From the space-ship I could see worse than from a plane, of course, but still quite well. During the flight I could see for the first time with my own eyes the spherical shape of the Earth. That is what it looked like at the horizon. I must say that the horizon presented a unique and exceedingly beautiful sight. There was an unusually colourful transition from the bright surface of the Earth to the pitch-black sky with the stars in it. The transition was very thin, something like a film girdling the globe. It was of a delicate light-blue colour. That transition from blue to black was very gradual and beautiful. It is even hard to describe it in words. And when I emerged from the Earth's shadow, the horizon was different. There was a bright orange strip on it which then blended into blue and then into inky black. I did not see the Moon. The sun shone tens of times brighter than on Earth. The stars could be seen very well: they were bright and clear. The whole picture of the sky was in much greater contrast than we see it from our Earth.

Question: Did you feel lonely in outer space?

Answer: I felt no loneliness, in fact; I knew very well that my friends, the entire Soviet people, were following my space flight. I was sure that the Party and the Government were ready to come to my aid if I were to face some hazards.

Question: Where were you when the first Soviet Sputnik was launched, what were you doing and did you imagine that you would be the first astronaut?

Answer: When the first Soviet artificial Earth satellite was launched I was finishing the Orenburg Air Force school. That day we had come back from training flights on MIGs. Together with my comrades, I felt very proud of that great accomplishment of Soviet science and technology. It was apparent that the day was not far off when man would fly up into space. But I thought it would not be too soon: ten

years perhaps. Actually less than four years have passed. Of course, at the time I liked the idea of travelling into space, but I never dreamt that I would be the first to go up in a space vehicle.

Question: What subjects did you like most at school?

Answer: I finished six classes at a Gzhatsk secondary school. Then I studied at a Lyubertsy vocational school and later at an industrial technicum in Saratov. All those years my favourite subjects were physics and mathematics.

Question: When did you first hear of Tsiolkovsky?

Answer: I first heard of Tsiolkovsky in school. When I studied at the technicum and the Air Force school, his name was very dear to us and we studied his works. I can say that in his book *Beyond the Earth* Tsiolkovsky very clearly forecast everything that I myself saw during my flight. Konstantin Tsiolkovsky imagined the world which would present itself to the eyes of man in outer space as no one else did.

Question: Who is your favourite hero of literature and your favourite writer?

Answer: I have many favourite writers, both Soviet authors and the classics. I like very much to read Chekhov, Tolstoy, Pushkin, and Polevoi. My favourite literary hero from childhood is the hero of Boris Polevoi's *A Story of a Real Man*. I am very sorry never to have had occasion to meet Maresyev. I have read Jules Verne. His books are very interesting, of course, but we see now that reality does not follow his fantasy. I liked very much the *Andromeda Space Tale*, but from the position of a man who has seen outer space not everything there is realistic. Still the book is a useful one.

Question: Judging by how you feel, could you have stayed longer in outer space?

Answer: I could have stayed much longer in the spaceship. But the duration of my flight was specified in advance by the programme. I worked well in the vehicle and I felt well and was in high spirits. I am sure I could have stayed up as long as needed for the task.

Question: What was your first feeling when you regained the Earth?

Answer: It is very difficult to express in words the feelings which flooded me when I set foot on our Soviet soil. First of all I was glad because the task had been successfully carried out. In general all the feelings which swept me were happiness. During my descent I sang the song: "The country hears, the country knows . . .".

Question: How did you regard the offer to prepare for space flight?

Answer: The desire to travel in space was my personal desire. I wanted to become an astronaut. When this was entrusted to me, I began preparing for the flight. And, as you see, my wish has come true.

Question: Do you go in for sports? What sports do you like most?

Answer: I like sports and most of all I play basketball. Besides, I like to ski, skate, and play badminton. That is a good game which imposes a considerable strain.

Question: What is your favourite occupation?

Answer: Most of all I like to fly. Up till now I flew planes. I liked this flight into space very much. Could I compare my first plane flight with yesterday's flight? It is hard to compare. One flight was on a winged vehicle, the other on a wingless one. The first was at a speed of 90 m.p.h., the second of 17,500 m.p.h. The altitude of the first flight was a mile, the second was 190 miles.

Question: What made you happiest when you returned to Earth?

Answer: I was very glad to return to Earth. Our Soviet people gave me a big welcome. I was moved to tears by Nikita Sergeyeich Khrushchov's telegram. I was moved by his concern, his attention, his warmth. My greatest joy was during my telephone conversation with N. S. Khrushchov and L. I. Brezhnev. My heartfelt gratitude, my filial gratitude goes out to Nikita Sergeyeich for the concern he has shown towards me.

Question: The foreign press reports that the United States also plans to send a man up into space. What could you say about this?

Answer: Our Party and Government has raised the question of the peaceful use of outer space, of peaceful competition. Of course, we shall be glad of the success of American astronauts when they travel up. There is room enough for all in outer space. But that arena should be used for peaceful purposes, not for military aims. American astronauts will have to catch up with us. We shall hail their achievements but we shall always try to keep ahead.

Question: What was the most significant event in your life prior to this flight?

Answer: In the summer of 1960 I joined the Party. That was the greatest, the most vivid event of my life up till this flight into space. I dedicate my flight to our Party, our Government, the Twenty-Second Congress, to the whole people who are marching in the van of mankind and building up a new society.

Question: What are your plans for the future? Would you make another flight?

Answer: My plans for the future are: I wish to devote my life, my work, my mind and my soul to the new science now engaged in conquering outer space. I would like to visit Venus and see what is concealed below its clouds, to go to Mars and see for myself whether it has any canals or not. The Moon is a fairly close neighbour of ours.

I think that we have not long to wait before we fly towards the Moon and reach the Moon.

Question: You know that after Sputnik I was launched thousands of letters came from people asking to be sent up into space. Did you read any of those letters?

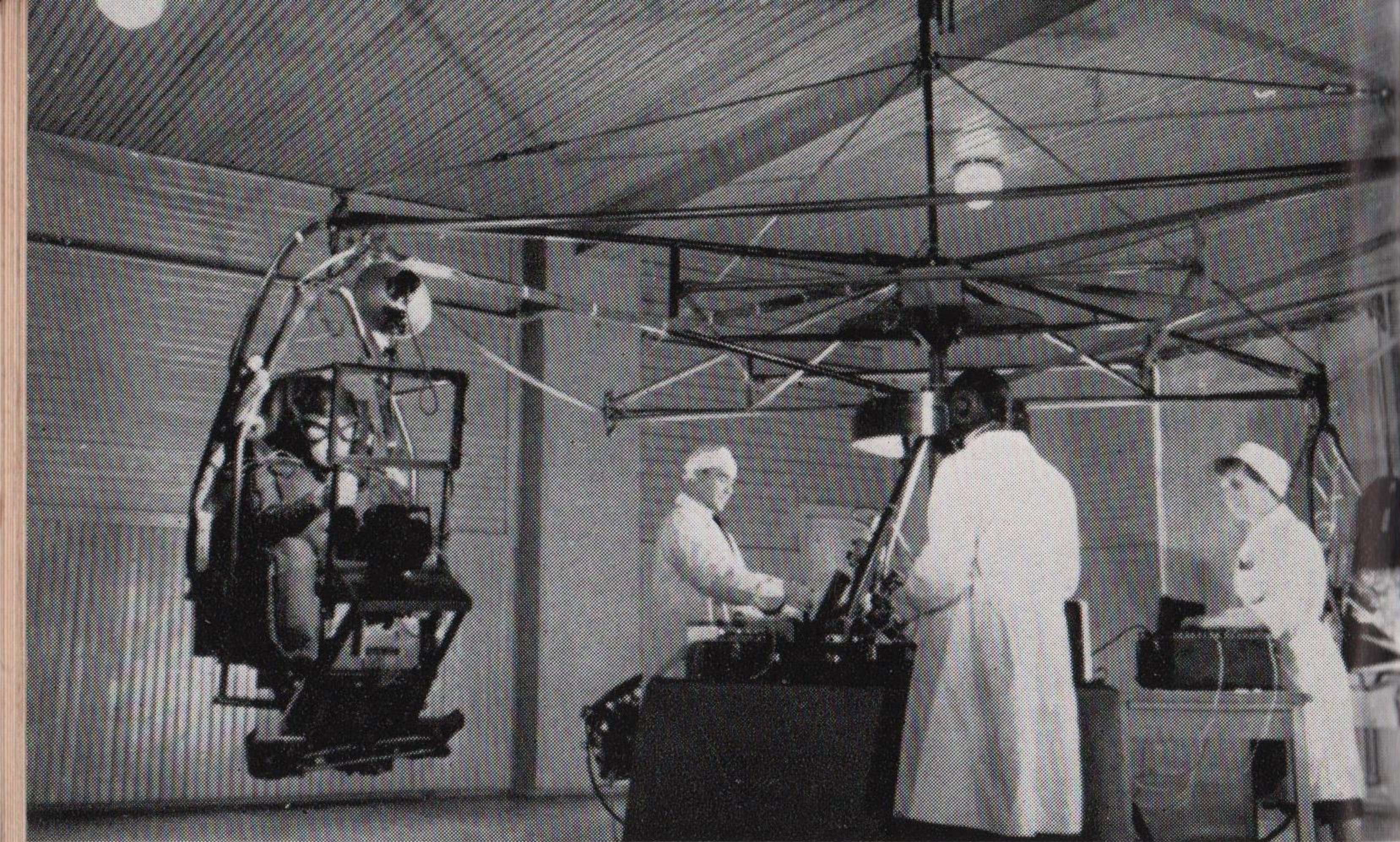
Answer: Yes, I did read those letters and felt that they were all written from the bottom of the heart. Of course, I am sorry that it did not fall to them to make this flight. But I am sure that the time will come when trips around the Earth will be organised by trade unions.

Question: Have you any message for your parents and fellow townsmen?

Answer: I would like to send my parents and my fellow townsmen greetings and best wishes for success in work and in life.

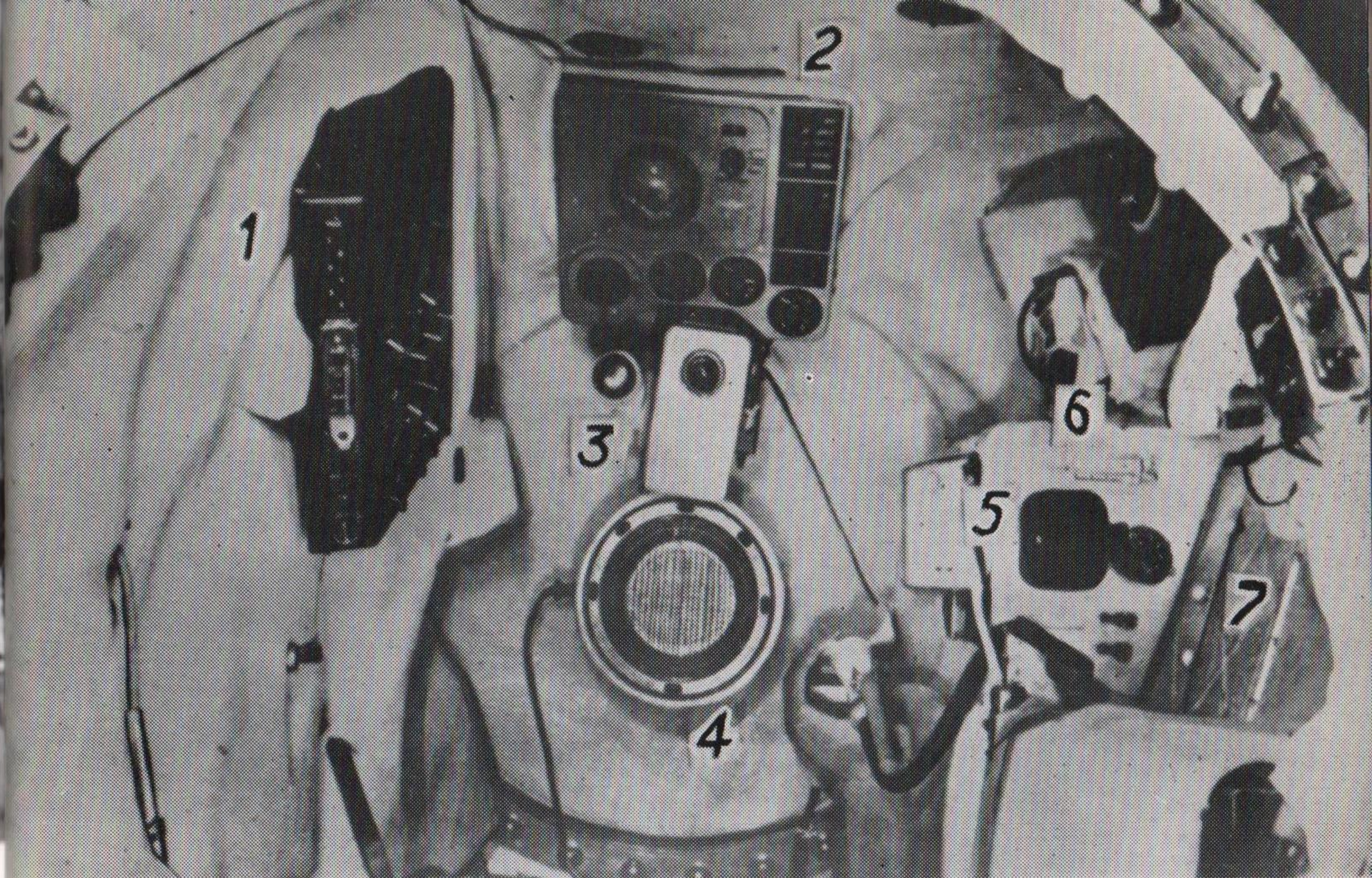
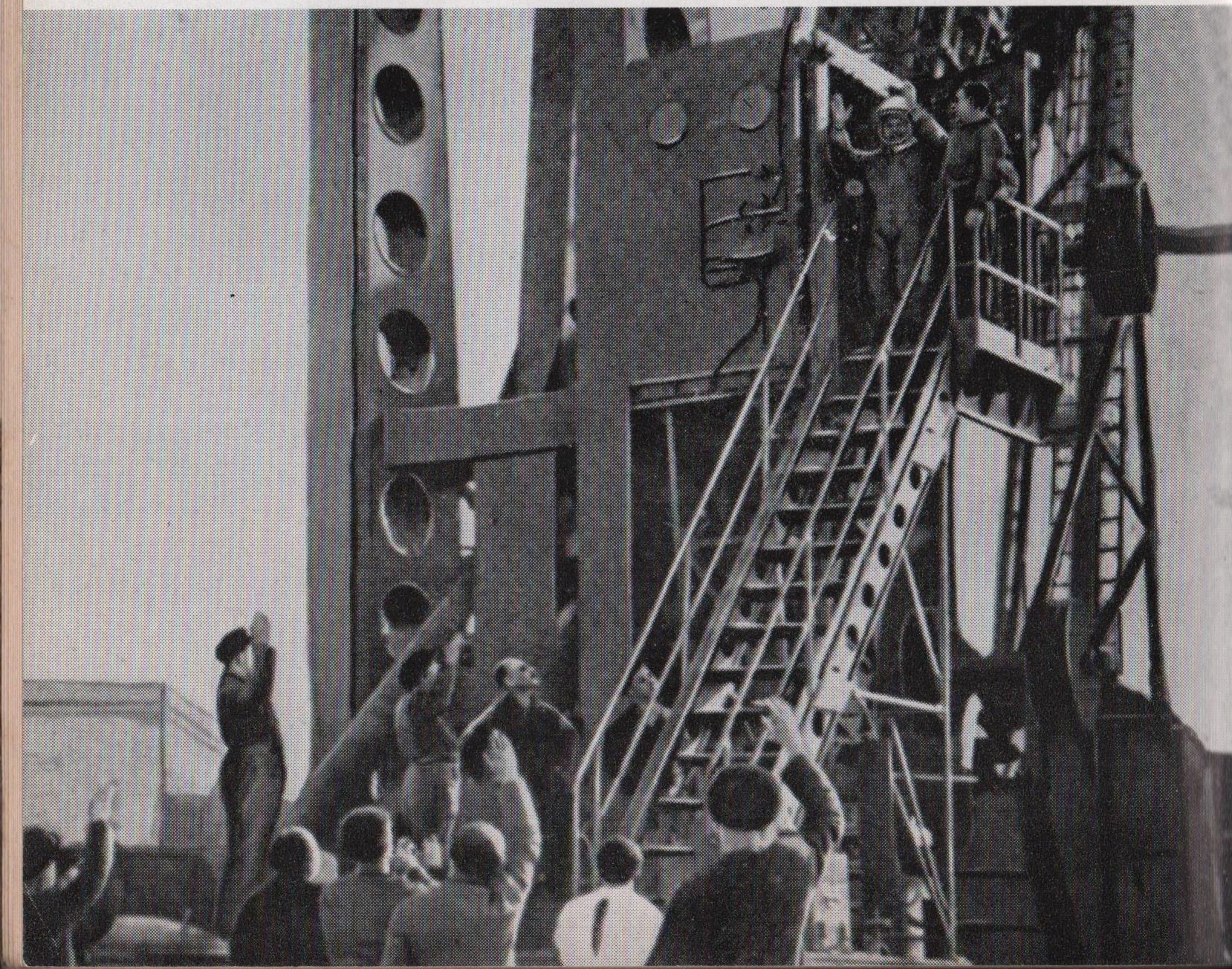


A portrait of Yuri Gagarin taken on April 13th, 1961—the day after his epic journey in space.



The centrifuge (above) enables pilots and cosmonauts to be whirled round at speeds which subject them to take-off pressures. Results are recorded on instruments. (From a Soviet documentary film.)

Below: Off into the unknown. Yuri Gagarin waves as he enters the cage which will take him aloft to his space-ship in the nose of the huge rocket. In an hour-and-three-quarters he will be back again, after travelling about 26,000 miles.



Yuri Gagarin's cabin in the space-ship "Vostok". 1. Control panel. 2. Instrument board with globe. 3. Closed-circuit television. 4. Porthole (one of three) with optical devices. 5. Manual orientation control (steering). 6. Radio. 7. Food and water containers.

Right: Yuri Gagarin in his space-suit as he rides in the bus to the rocket-site to commence his long, lonely journey.



The period of the flight was an anxious time for the cosmonaut's wife Valentina. On the right she is pictured as she listened to the radio commentary between Earth and space.



Below: a hero's welcome, as Yuri Gagarin is brought from the rocket site to Moscow's Vnukovo Airport after his space flight on April 12th. His Ilyushin-18 has an escort of MiG jets.



Waiting to welcome the hero at the airport. Left to right: his mother; N. S. Khrushchov; his father; Mrs. Khrushchov; and Yuri's wife Valentina.

Below: the watchful eyes of dozens of newsreel cameras which recorded the scene for the world.



The First Cosmonaut

THE FIRST COSMONAUT

YURI GAGARIN's name, the name of the first space pilot in history, has become known throughout the world. Who is this man who has opened a new page in the history of world civilisation?

Twenty-Seven Years Old

Major Yuri Gagarin is twenty-seven. He was born on March 9th, 1934, into the family of a collective farmer in the Gzhatsk District, Smolensk Region, Russian Federation.

In 1941 he entered a secondary school, but the Hitler invasion interrupted his studies.

After the war the Gagarin family moved to Gzhatsk, where Yuri continued to study at secondary school. In 1951 he graduated with honours from a vocational school in the town of Lyubertsy, near Moscow, receiving a foundryman's certificate, and simultaneously he finished an evening secondary school.

Then he studied at an industrial technicum in Saratov, on the Volga, from which he graduated, also with honours, in 1955.

Yuri Gagarin made his first steps in aviation while a student of the technicum. He attended the Saratov aero-club. After completing a course of training at the aero-club in 1955, he entered an Air Force school at Orenburg. Since 1957, following graduation from that school with a first-class certificate, Yuri Gagarin has served as a pilot in the Soviet Air Force.

Last year Yuri Gagarin joined the Communist Party of the Soviet Union.

He is married. His wife Valentina, one year his junior, is a graduate of the Orenburg medical school. They have two daughters, Yelena, two years old, and Galya, one month old.

Gagarin's father is fifty-nine, and works as a carpenter. His mother, Anna, born in 1903, is a housewife.

Such is Gagarin's biography. It is not long, that chronicle of his life. And yet it is the biography of a hero who, in the words of Soviet



The Soviet Premier, N. S. Khrushchov, introduces Major Gagarin to some of those honouring his arrival at Vnukovo Airfield, Moscow.

In a flower-decked car, N. S. Khrushchov, Major Gagarin and his wife, commence the eight-mile ceremonial drive from Vnukovo Airport to the Red Square.



Premier N. S. Khrushchov, has glorified his country and immortalised himself.

Born Near Gzhatsk

In Smolensk Region, on the very boundary of Moscow Region, lie the fields of a district famous for its flax growers. The district centre is Gzhatsk, an old Russian town founded in the early eighteenth century as a landing stage on the Gzhat River for shipping grain and other cargoes to St. Petersburg. Gzhatsk is a big railway centre, and the Moscow-Minsk highway passes through it.

On March 9th, 1934, the family of Alexei Ivanovich Gagarin, member of a collective farm not far from Gzhatsk, celebrated the birth of a second son. The boy was named Yuri.

At the age of seven Yuri experienced the Hitler invasion. He saw things never to be forgotten: for an innocent childish prank a huge ginger-headed Nazi lifted Yuri's younger brother, Boris, like a pup and hung him by the scruff of the neck on an apple-tree branch. He remembers the bitter tears of his mother and the terrible cold night when the Nazi threw him out into the street.

In school Yuri liked mathematics and physics. He was an active member of the mathematics circle and spent much of his free time in the physics room.

"I think Yuri started dreaming of becoming a flier back at school," his brother Boris says. "In our small town the boys gained their information about aviation and airmen only from books. But Yuri always seemed to find drawings of aeroplanes somewhere and he would make small models of them.

"Besides his interest in aviation, of which he never spoke much, Yuri went in for sports and was a keen football and basketball player, but he always said that he would have to settle finally on one of the two games. When he moved to Saratov to study at a technical school he mentioned in a letter that he hoped to learn to fly."

Vocational School

Antonina Ivanovskaya, Yuri's cousin, has been living in Moscow for many years.

"I realise," she says, "that people everywhere are interested in the slightest details of Yuri's biography. And yet I can hardly recall anything out of the ordinary or, as you journalists say, sensational.

"His life and his studies were the same as the life and studies of thousands of young Soviet people. His biography repeats in practically every detail the biographies of his contemporaries.

"My husband and I lived in Moscow when Yuri turned up from Gzhatsk after finishing the sixth form at school. We talked things over and decided that he would learn a trade in the metallurgical industry. My husband's stories of his work interested Yuri and he decided to join a vocational school for metallurgical workers.

"The next day we went to a Lyubertsy factory vocational school, which exists to this day. We were almost too late as the first examinations began on the day of our arrival.

"Hearing that Yuri had come from afar, the head of the school's study department, a young warm-hearted man whose name I have unfortunately forgotten, allowed him to take his examinations. Yuri passed his examinations in Russian and arithmetic with flying colours, and the question of his joining the school was settled. He was put up at the school's hotel so that he wouldn't have to commute between Moscow and Lyubertsy."

While studying at the vocational school, Yuri also finished an evening secondary school and received a school-leaving certificate.

To the City on the Volga

From Lyubertsy, near Moscow, Yuri's road lay to the banks of the great Russian river Volga. He arrived in Saratov in 1951 and began studying at an industrial technicum. For four years he studied foundry practice and invariably passed all his examinations with excellent marks. He always seemed to have time for everything: for social work, for studies, and for his aviation hobby. He graduated from the technicum, as from the vocational school, with honours.

Yuri never gave up his boyhood dream of becoming a flier, a conqueror of the atmosphere. Small wonder that the first thing he cast by himself was an airplane model. He spent all his free time at an aero-club which he joined in 1954.

Yuri passed the acceptance commission without a hitch. His answers to the questions, his well-trained muscles, and his calm assurance all suggested to the commission members that the well-knit lad would make a good airman.

He attended the aero-club three evenings a week. It was not easy to combine studies at the technicum and the aero-club, but Gagarin had a knack of arranging his time in the best way. He passed his examinations in all subjects of the course successfully.

Exceedingly conscientious, Yuri Gagarin rapidly mastered the skill of flying. His instructor was Dmitri Martyanov, an experienced pilot. Yuri learned to pilot a YAK-18 plane, and he spent only thirteen hours in flights with an instructor before making his first independent flight. That was in June 1955.

Flying Skill and Maturity

In the old Russian city of Orenburg there is an Air Force School from which many famed fliers have come, among them 134 Heroes of the Soviet Union, including thirteen bearers of two Gold Stars. Valeri Chkalov, Anatoli Serov and many other famous Soviet airmen studied there. And there, over the steppes near Orenburg, the future cosmonaut perfected his skill.

Anatoly Lukyanovich Agafonov, one of Yuri's instructors at the Air School, says:

"Gagarin is remembered at the school as one of the best students. He had only excellent marks. He gave much attention to theoretical studies and showed keen interest in the works of Tsiolkovsky, Zhukovsky, Chaplygin and other leading aviation scientists. When the first artificial Earth satellites were launched he studied everything he could lay his hands on about those achievements of Soviet science and technology."

Yuri graduated from the Air Force School with the rank of a lieutenant and a first-class flying certificate. At school he went in for sports, was known as a good gymnast, and received an all-round physical training. He is remembered at the School as an active social worker, a good comrade and a member of the amateur art company.

His mother worried about his choosing to fly and he would soothe her and write wonderful letters:

"Mamma! I love you. I love your big, caressing hands, I love the wrinkles at your eyes and your grey hairs. . . . Never worry about me. . . ."

When they met and his mother would ask, "Yuri, tell me what it's like," his face would grow serious and his voice firmer: "Never worry about me, Mamma. I'm a Soviet flier. Our machines won't let me down. . . ."

He knew the machines very well. He believed in the people who created them. That is why his heart beat calmly that day before the flight. He knew that he would return to Earth.

The Gagarins

Like everyone else, he left for work every day and walked with his little girl in the courtyard. A modest, merry, broad-shouldered young man, capable of appreciating a good joke, keen on sports and higher mathematics, music and literature.

He is known and respected there. Respected for the ready sympathy and mild humour shining in his eyes. This humour is replaced by admiration when Yuri attends a performance of the ballet or the

"Beryozka" Ensemble. He is a great lover of ballet but he has many other interests as well. He could often be seen on the basketball court, and the boys yelled with delight when they saw with what agility "uncle Yuri" tossed the ball into the basket despite his small height.

That is the Yuri his associates and neighbours know. And they all say that the main traits of his character are boundless love for his country and its people, mildness and modesty, the best traits of a real Russian man and Communist.

And his wife Valentina Ivanovna is also a modest, pleasant woman. She is a laboratory assistant in a clinic and a good mother to their two daughters, Yelena, and Galya who was born on March 7th.

How fine it is to go through life with a friend at your side, with two hearts beating in unison! Four years ago, on March 9th, 1957, Valya, his wife and helpmeet, wrote on a photograph: "Yuri, remember that we ourselves are the makers of our happiness. Never bow your head to fate. Remember that the ability to wait is a great art. Keep that feeling till the happiest moment."

Probably she recalled those words on that great day, April 12th, 1961, when her Yuri circled the Earth with amazing speed at unexplored heights, glorifying the power of human thought, the genius and might of the Land of the Soviets.

This spring is a most happy one in the life of the Gagarins. On March 9th, Yuri celebrated his twenty-seventh birthday. Two days before that his daughter Galina was born. Several days later Yelena celebrated her second birthday. Friends and relatives congratulated them at the festive table. Now the whole world congratulates the Gagarin family.

The Country Welcomes the Hero

ON APRIL 14th the whole world again breathlessly tuned in on Moscow. The Soviet capital was paying homage to Yuri Gagarin, the world's first pilot cosmonaut who circumnavigated the globe. It was with a feeling of happiness and inspiration that the land of the Soviets welcomed the first space traveller.

Thousands of people gathered in the streets and squares decorated with flags. They brought with them the first flowers of spring, pictures of Gagarin and posters with slogans singing praise to the great exploit which will go down in history as a great triumph of the socialist system, of its mighty creative effort.

The huge streamers, stretching across the facade of Vnukovo airport building, carried words of hearty greeting to Yuri Gagarin, the Soviet citizen who was the first to conquer outer space. Next to the streamers hung portraits of V. I. Lenin, N. S. Khrushchov and Y. A. Gagarin.

At midday the leaders of the Soviet Government and the Communist Party, representatives of the working people of Moscow and Moscow Region, arrived at the airport to meet the hero cosmonaut.

At 12.30 p.m. a sleek four-engined Ilyushin-18 airliner landed at the airport bringing with it Nikita Khrushchov from Sochi.

On the rostrum at the airport next to the leaders of the Party and the Government stood Valentina Gagarina, the heroic pilot's wife, and his relatives who had arrived from Smolensk Region: his father, mother, sister and brothers. Nikita Khrushchov heartily shook hands with them all.

At 12.37 p.m. the excited cries of "Gagarin's plane is coming" sounded over the airport. The Il-18 airliner carrying Gagarin, escorted by seven fighters, approached the airport. It carried the man who was the first to blaze the trail for humanity into the boundless expanses of the Universe. The plane made a round of honour over Moscow as the band at the airport played the song "Welcome to Moscow", composed in honour of Yuri Gagarin.

After landing, the plane came to a standstill at the edge of a long red carpet, and Major Gagarin rapidly descended from the machine. He was met with shouts of "Hurrah!" and a storm of applause.

After taking about a hundred paces along the carpet Major Gagarin came up to Nikita Khrushchov and, raising his arm in a military salute, made the following report:

"Comrade First Secretary of the Central Committee of the Communist Party of the Soviet Union and Chairman of the Council of Ministers of U.S.S.R.

"I am glad to report to you that the assignment of the Central Committee of the Communist Party and the Soviet Government is carried out.

"History's first manned space flight in the Soviet space-ship *Vostok* has been successfully accomplished on April 12th.

"All of the ship's instruments and equipment functioned with precision and faultlessly.

"I am feeling fine, and am ready to carry out any other assignment of our Party and the Government. Major Gagarin."

Nikita Sergeyeovich took off his hat, embraced the hero and kissed him as a father would kiss his son.

"Congratulations to you, congratulations!" he said to the cosmonaut.

Nikita Sergeyeovich then introduced the hero to the members of the Presidium of the Central Committee of the Communist Party of the Soviet Union. They all heartily greeted Gagarin, who after that found himself in the warm embraces of his mother, wife, father, brothers and sisters.

The excited witnesses of this meeting were not only the people who had gathered at the Vnukovo airport, but also the whole of Moscow, the whole of the Soviet Union and almost the whole of Europe.* All these people watched with baited breath, their hearts filled with joy, as the country paid homage to its courageous son.

A thunderous "Hurrah" sounded as Nikita Khrushchov and Yuri Gagarin passed by the Muscovites gathered at the airport.

Several minutes later Nikita Khrushchov, Yuri Gagarin and his wife got into a blue convertible motor-car decorated with garlands of red roses. Then the motorcade started for Moscow. Along the entire route from Vnukovo to the Red Square hundreds of thousands of enthusiastic Muscovites met the cars with happy cries of "Glory to the Hero of Cosmos!" and "Glory to the Communist Party!"

The Red Square, the place where Soviet people gather to celebrate their holidays, was unusually smart on that day.

* The event was televised throughout Europe.

The stands stretching along the Kremlin wall, decorated with the coats of arms of the Union Republics, were full of guests. Among them were workers of plants and factories, front-ranking agriculturists, scientists and cultural workers, statesmen and public figures, deputies to the Supreme Soviets of the U.S.S.R., R.S.F.S.R. and Union Republics, Marshals of the Soviet Union, generals and officers of the Soviet Army. Members of the diplomatic corps and foreign guests were also there.

The whole square was full of people. One could see over the columns of the working people of the capital a sea of banners, portraits of V. I. Lenin, of the leaders of the Party and the Government and of Yuri Gagarin.

A storm of applause and shouts of "Hurrah!" swept over the square as the leaders of the Communist Party and the Soviet Government, Yuri Gagarin, his wife and relatives went up to the rostrum of the Mausoleum.

The Triumph of Human Reason

PRESS CONFERENCE IN SCIENTISTS' CLUB

THE FOURTH DAY of the new era. The fourth day since man himself broke through all the obstacles set up by nature and penetrated into outer space.

Thousands of Soviet and foreign journalists, scientists, public figures and diplomats brought with them to the Scientists' Club, where the first press conference about the first space flight was held, the tremendous interest of millions accumulated in these days, their eagerness to hear from the lips of the first space pilot the story of the things he saw.

Thousands of eyes, hundreds of photographic, ciné and television cameras pointed towards the stage, towards Yuri Gagarin, when, together with scientists, he appeared in the hall. People rose from their seats to give the hero a standing ovation. Anticipating events we can say that in the two hours that the press conference lasted they had other occasions to rise and applaud to express their admiration for the man who conquered space and pay the tribute due to him.

The press conference was opened by Academician A. N. Nesmeyanov, President of the U.S.S.R. Academy of Sciences.

Statement by Academician A. N. Nesmeyanov

The Soviet Union placed history's first manned space-ship, *Vostok*, piloted by Yuri Alexeyevich Gagarin, into orbit round the Earth on April 12th, 1961.

It happened in the morning. The space vehicle entered an orbit with a perigee of 112½ miles and an apogee of 203 miles above the surface of the Earth. Its orbital period was 89.1 minutes. The vehicle weighed, together with the cosmonaut, 4,725 kg. (4 tons, 13 cwt.).

The space-ship was equipped with everything necessary for the cosmonaut's safe flight and return to Earth. Many systems of the vehicle were duplicated. It carried instruments enabling the pilot to determine his position in orbit at any moment.

Constant two-way radio communications were maintained with the pilot both prior to the take-off and during the flight.

I must stress the exceptional courage, grit, and will-power of Yuri Alexeyevich Gagarin. He slept soundly on the night before the flight, just as the doctors had prescribed him to, and was awakened several hours before the flight.

His heartbeat was 70 to 75 per minute during the whole of the preparation period and after the rocket's take-off. He joked, and by his high spirits strengthened confidence in the success of the flight.

When he was told that the signal was about to be given for starting the rocket motors he exclaimed cheerfully, "Well, up we go!"

During the boost stage, when the powerful rocket motors were working and he felt the full impact of the high loads, vibration and noise, even in that tense stage of the flight Yuri Alexeyevich Gagarin continuously reported all the necessary information both about his own state and the work of the systems in the space-ship cabin. When he emerged from the dense layers of the atmosphere and saw the Earth he reported, "What a beautiful sight!"

Later, during the whole flight Yuri Alexeyevich maintained constant contact with the Earth. Passing over South America at 9.52 he reported, "Flight proceeding normally. Feeling well". At 10.15, passing over Africa, Yuri Alexeyevich reported "Stand weightlessness well".

The space-ship's retro-rockets were switched on at 10.25 and the vehicle, together with its pilot, Major Gagarin, began to descend from its orbit to land in a designated area. At 10.55 the Soviet space-ship *Vostok* landed safely.

Thus, a matchless feat was performed and a new brilliant page inscribed in the history of human civilisation. This is a feat of the Soviet people guided by our Communist Party and Soviet Government. This is a feat of large collectives of scientists, designers, engineers, technicians and workers, a feat of all the test workers who ensured the faultless preparation and launching of the space-ship, a feat of all the services which ensured the normal flight and landing of the vehicle, this is a feat of the brave son of the Soviet land Yuri Alexeyevich Gagarin. His name has already become a legend.

Everything in this feat is symbolic: the fact that the first space traveller is a Soviet man, the fact that the first space vehicle aboard which Yuri Alexeyevich Gagarin made his flight was called *Vostok* (East), and the fact that the flight took place in the morning. That morning became the morning of a new era.

From now on and forever, the day of April 12th, 1961, will be associated with the feat performed by Yuri Alexeyevich Gagarin. The flight around the Earth lasted 108 minutes, and those minutes shook the world.

Human civilisation has a long, fabulously wonderful history. Every exploit in it, whether it was the creation of the first symbols of writing or the creation of the first steam engines or the first circumnavigation of the globe, were all milestones marking man's ascent to a new rung and the assertion of the force of progress and creation. Not all of those exploits were recognised at once. The old waged a stubborn fight against the new, and the more revolutionary the event blazing the trail into the future, the fiercer was the opposition of the past.

On the threshold of the twentieth century, Tsiolkovsky, his genius unrecognised, for the first time showed mankind the road to the stars. His works contained the scientific fundamentals of cosmonautics, a science, a brilliant triumph of which we are marking today.

The words of Konstantin Eduardovich Tsiolkovsky, "The Earth is the cradle of thought, but we cannot remain forever in our cradle", have come true.

Yuri Alexeyevich Gagarin, the first space pilot, went through an extensive, strenuous course of training. It was an unusual, profoundly scientific system of training, which gave the space pilot the necessary technological knowledge connected with the design of the space-ship and its systems, knowledge in astronomy, geophysics, biology and other sciences.

The space pilot was subjected to great strains in special centrifugal machines and vibration stands. Tests in airtight cabins completely duplicating a space-ship's cabin lasted for days and weeks. The landing system was perfected.

All the tremendous work culminated in the first space flight in history.

Dear Yuri Alexeyevich,

On behalf of the Presidium of the Academy of Sciences of the U.S.S.R. I hail you, a wonderful Soviet man, the Columbus of outer space. (*Prolonged applause, the hall gives a standing ovation to Y. A. Gagarin.*)

Centuries will pass. But your name will always remind people of the great exploit performed by Soviet scientists and designers and by you personally, the exploit of the first manned flight in outer space.

You have shown all mankind an example of courage, valour and heroism in the name of serving mankind!

Academician A. N. Nesmeyanov presented Y. A. Gagarin with the Tsiolkovsky Gold Medal, awarded to the hero by the Presidium of the U.S.S.R. Academy of Sciences for carrying out the world's first space flight in the space-ship "Vostok".

After opening the press conference, Academician Nesmeyanov gave the floor to Hero of the Soviet Union, Major Yuri Alexeyevich Gagarin.

Statement by Y. A. Gagarin

Dear comrades, esteemed guests,

Many people are interested in my biography. I have read in the papers that some idle persons in the United States, distant relatives of Prince Gagarin, claim that I am some descendant of theirs. I must disappoint them. I think it was just not serious, and foolish of them. I am an ordinary Soviet person. I was born on March 9th, 1934, into the family of a collective farmer. My birthplace is Smolensk Region. I have no princes in my genealogy. My parents were poor peasants before the Revolution. The elder generation of my family, my grandfather and grandmother, were also poor peasants and there were never any princes in our family. So I must disappoint my self-styled relatives in America.

I studied at school, then at a trade school in Lyubertsy, Moscow Region. Then I entered a foundry technical school in Saratov. But my old dream was to become a flier. When I finished the technicum in 1955 I simultaneously finished the Saratov aviation club. After that I was accepted at the Orenburg Air Force School, which I finished in 1957 with the qualification of fighter-pilot. I served in a unit of the Soviet Armed Forces.

At my urgent request I was accepted as one of the candidates for the Soviet space programme. I passed the tests and, as you see, have become a space pilot. I went through the training programme drawn up by our scientists. The President of the Academy of Sciences has described it in detail. The training was successful, I studied the machines and equipment well, and was ready for space flight.

I am very happy and boundlessly grateful to our Party and our Government for entrusting this flight to me. I carried it out in the name of our country, in the name of the heroic Soviet people, in the name of the Communist Party of the Soviet Union and its Leninist Central Committee.

I felt very well before the flight. I was fully confident of its successful outcome. Our machines and equipment are very reliable and I and all my comrades, the scientists, engineers and technicians, never doubted the success of the undertaking.

During the flight I also felt fine.

During the boost stage for orbiting the excess loads, vibration, noise and other factors of space flight did not act on me oppressively. I was able to work fruitfully according to the programme of the flight.

Whilst orbiting, when the carrier rocket was separated, weightlessness began. At first the sensation was rather unusual, even though I had previously been subjected to brief spells of zero-gravity. But I

soon grew accustomed to the strange state, adjusted myself to it and continued to carry out the programme. In my own subjective opinion, weightlessness does not affect the working ability of the body or its physiological processes.

Through the whole period of the flight I conducted fruitful work according to the set programme. In flight I ate and drank, I maintained constant radio communication with the Earth through several channels, both by radio-telephone and telegraph, observed the environment, looked after the work of the space-ship's equipment, reported to the Earth and recorded my observations and other information in the log journal and on magnetic tape. I felt very well and worked normally during the whole period of weightlessness. Then the command for descent was given according to the flight programme. The vehicle was properly orientated in space, the braking system was switched on and the speed dropped. I returned to Earth and was happy to meet our Soviet people. The landing took place in the designated area.

I would like to describe what I saw.

The Earth can be seen very well from the height of 112½ to 203 miles. The surface looks much as we see it when flying jet planes at high altitudes. Big mountain ranges, big rivers, big forests, shorelines and islands can be seen clearly. Clouds covering the Earth and their shadows can be observed very well. The sky is pitch-black. The stars look brighter and clearer against the background. The Earth is surrounded by a blue halo. It can be observed very well in the direction of the horizon. The colour of the sky merges very gradually and beautifully from a delicate light-blue, through ultramarine, dark-blue, and violet, and finally into inky-black.

On emerging from the shadow the Sun shone through the Earth's atmosphere and the halo was of a somewhat different colour. At the very horizon, close to the surface, it was of a bright orange which then passed through all the colours of the rainbow to ultramarine, blue, violet and black.

The entrance into the Earth's shadow is very rapid. It grows dark at once and nothing can be seen. Probably the vehicle was passing over the ocean at that moment. If it were passing over big cities I would probably have seen their lights. The stars shine very brightly.

The emergence from the Earth's shadow was also very rapid and sudden.

As I was specially trained, I endured the efforts of space flight very well. At present I feel fine.

I am very grateful to our Soviet designers, engineers and technicians, to the whole Soviet working people, who created that wonder-

ful ship *Vostok*, its wonderful equipment, and the powerful carrier rocket which orbited such an enormous ship.

I am boundlessly happy that my beloved Fatherland is the first in the history of mankind to penetrate into outer space. The first aeroplane, the first Sputnik, the first space-ship and the first manned flight in space are all milestones on my country's great road towards mastery over the mysteries of nature. Our people are being guided confidently towards this goal by the Leninist Communist Party.

At every step of my life and work, at the trade school, the industrial technicum, the aviation club and the Air Force School, I constantly felt the solicitude and care of the Party whose member I am. I should like to note especially the loving, human concern displayed in the Soviet Union towards ordinary people on the part of the Central Committee of the Communist Party, the Soviet Government, and our beloved Nikita Sergeevich Khrushchov. Only a few minutes after landing on our Soviet soil I received a heartfelt telegram of congratulations from Nikita Sergeevich, his congratulations on the successful completion of the space flight. We have dedicated our flight to the heroic Soviet people, our Government, our own Communist Party and its Twenty-Second Congress.

We think of flying often and look forward confidently to the real conquest of outer space. We always rejoice at the achievements scored by other countries in the development of science and we shall be happy to welcome the cosmonauts of other nations in outer space and wish them success in the peaceful exploration of space. We wish to co-operate with them in the peaceful use of outer space.

Personally I want to fly a lot in outer space. I liked it. I want to fly to Venus, to Mars, to do some real flying.

Statement by N. M. Sisakyan

Man always strived to explore and conquer outer space. This gave rise to folk legends and bold dreams. There is a Greek myth that tells us how Icarus, son of Daedalus, rose into the air on wings joined together by wax. He flew too near the Sun, the wax joints of the wings melted and he fell back on to this planet. The bold dream of such a flight continued to agitate the creative mind of man and serve as a source of search for new ways of conquering the Universe.

Balloons, planes, rockets and artificial Earth satellites soared into the skies. Man acquired wings joined together by that strongest alloy, the laws of science, which not only permitted human beings to remain firmly on Earth but also to open the road to outer space.

Today we are marking an event of historic significance, the world's first flight of man in outer space. In this connection the elaboration

of methods of selecting and training a cosmonaut merit special mention.

"Space pilot" is a new occupation which has come into being for the first time in history. The Soviet space pilot embodies the bravery of Alexander Matrosov, the valour of Dzhalil, the fortitude of Zoya Kosmodemyanskaya, and the iron will of a man brought up by Lenin's great Party.

Such is the astronaut grown in conditions of Soviet life. Science has armed him with the requisite knowledge and the stamina to withstand the rigours of space flight. The selection of people fit physically for space flight and the scientifically conceived special preparation and training of them were all novel problems. In tackling them, the scientists proceeded from the peculiarities of space flight, from the results of the many previous biological experiments, from the knowledge of the conditions of a man's stay and work in the cabin of a space-ship, and from the response an astronaut was likely to show during flight. Naturally, a would-be astronaut could only be an absolutely healthy man possessing a high level of intellectual development and technical knowledge, a man with strong will, able to take instantaneously well-motivated decisions in a strained situation, to realise them immediately, and to evaluate the situation quickly and unerringly.

The selection procedure included a thorough examination of would-be astronauts in a clinic. Besides, use was made of special techniques of investigation which made it possible to determine fully enough the functional potentialities of the human organism and its adaptability to the adverse environmental factors. The tests were made in centrifuges, vibration-test stands, heat chambers, depression chambers, in conditions of sustained isolation and motorial restraint in silent chambers—facilities which completely shut out external stimuli (for example, sound, light, etc.).

Special emphasis in the selection procedure was placed on psychological investigations. More thorough investigations were further made in the course of preparation and training so as to finally clear a would-be astronaut for flight. The preparation course included theoretical subjects dealing with the tasks to be accomplished in flight, and training in the skills necessary for the space pilot to operate the cabin equipment and scientific instruments.

Every astronaut acquired a good knowledge of many special subjects related to rocket-flight dynamics, space physics, and the effects of flight factors on the human organism. Naturally, the physical fitness of an astronaut was of primary importance in the pre-flight training.

Physical training was purposeful. Use was made of techniques and

facilities employed in regular physical-training exercises so as to perfect the physical qualities essential to a man in space flight. The principal objective was to raise his resistance to acceleration, to work out and perfect body control and fine co-ordinated movements. Measures were taken to improve his ability to withstand sustained physical stress without any drop in his efficiency and to build up his will.

Besides, a good deal of attention was devoted to special exercises. Their principal aim was to let the astronaut get accustomed to the conditions likely to arise in space flight. In other words, space flight was simulated as far as possible in the ground laboratory and on aircraft.

This portion of training was perhaps the most important and the most difficult.

Thus, the training of an astronaut for space flight was an involved scientific problem. However, for all its complexity and unusual difficulty, it was, as we can see, solved successfully.

It is with great joy and pride that we extend congratulations today to our dear compatriot Yuri Alexeyevich Gagarin, the world's first astronaut, a man who accomplished an exploit with no parallel, an exploit of world historic significance.

The way to this exploit was paved by the collective heroism of our scientists, factory workers, engineers and technicians, by the selfless endeavour of our people under the leadership of the Communist Party of the Soviet Union.

The trail to space has been blazed. Tremendous work has been done, and a great victory has been won. New and broad vistas have been opened up before our science: man must not only get into space but also establish himself there and put the Universe under his control.

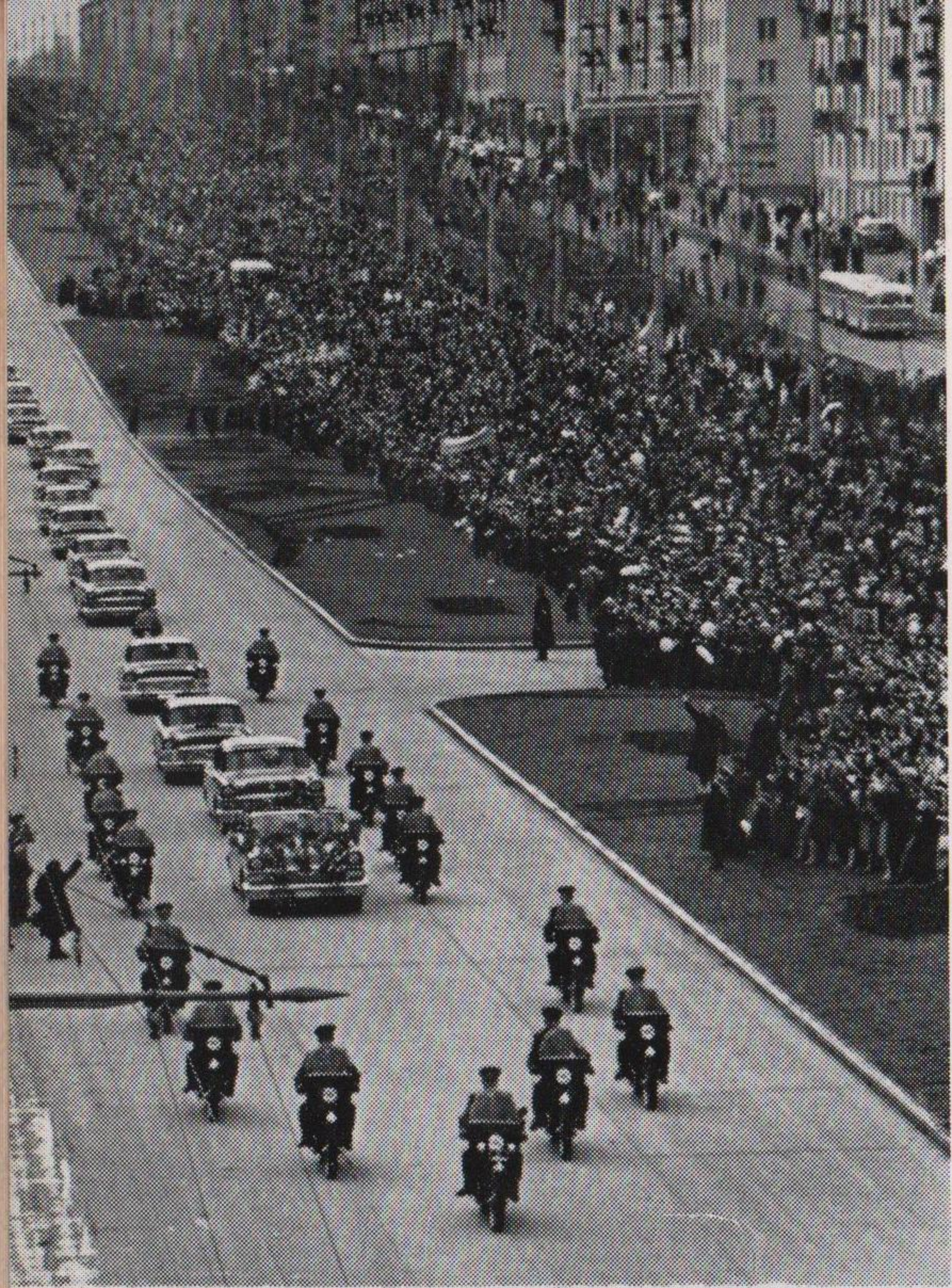
Statement by V. V. Parin

Preparation for the first manned space flight called for a considerable creative effort of a large body of medical experts, physiologists, biologists, and psychologists.

Before the first human astronaut went into space, a large amount of work had been done when the first Soviet Sputniks were launched, carrying dogs, small animals and other biological subjects. These experiments had brought in extremely important information about the effects of space flight on living beings and made it possible to work out a system of scientific medical observation. These investigations enabled us to choose the most reliable and effective methods for studying and recording physiological functions and—the chief thing



A proud mother—and a proud Prime Minister. Yuri Gagarin's mother waits with N. S. Khrushchov as her son comes to greet them at Vnukovo Airfield, near Moscow.



Left: The long line of cars with its motor-cycle escort comes down Moscow's Lenin Prospect.



Major Gagarin acknowledging the cheers of the crowd as he stands with scientists and Government leaders on the Mausoleum in the Red Square. A section of this crowd can be seen below. On the Kremlin walls hang the symbols of the fifteen Republics comprising the U.S.S.R., whilst Service flags fly in the foreground.



Above: N. S. Khrushchov's warm embrace for Yuri Gagarin in the Red Square.



Left: The Soviet 10-kopeck stamp, one of three issued in honour of the exploit.





Above: Yuri Gagarin addresses the Press Conference in Moscow on April 14th, 1961. Left to Right: Academician E. Fedorov, Major Y. A. Gagarin, and Academician A. Nesmeyanov.

Below: Yuri Gagarin reading congratulatory messages from all over the world he has just hurtled around.

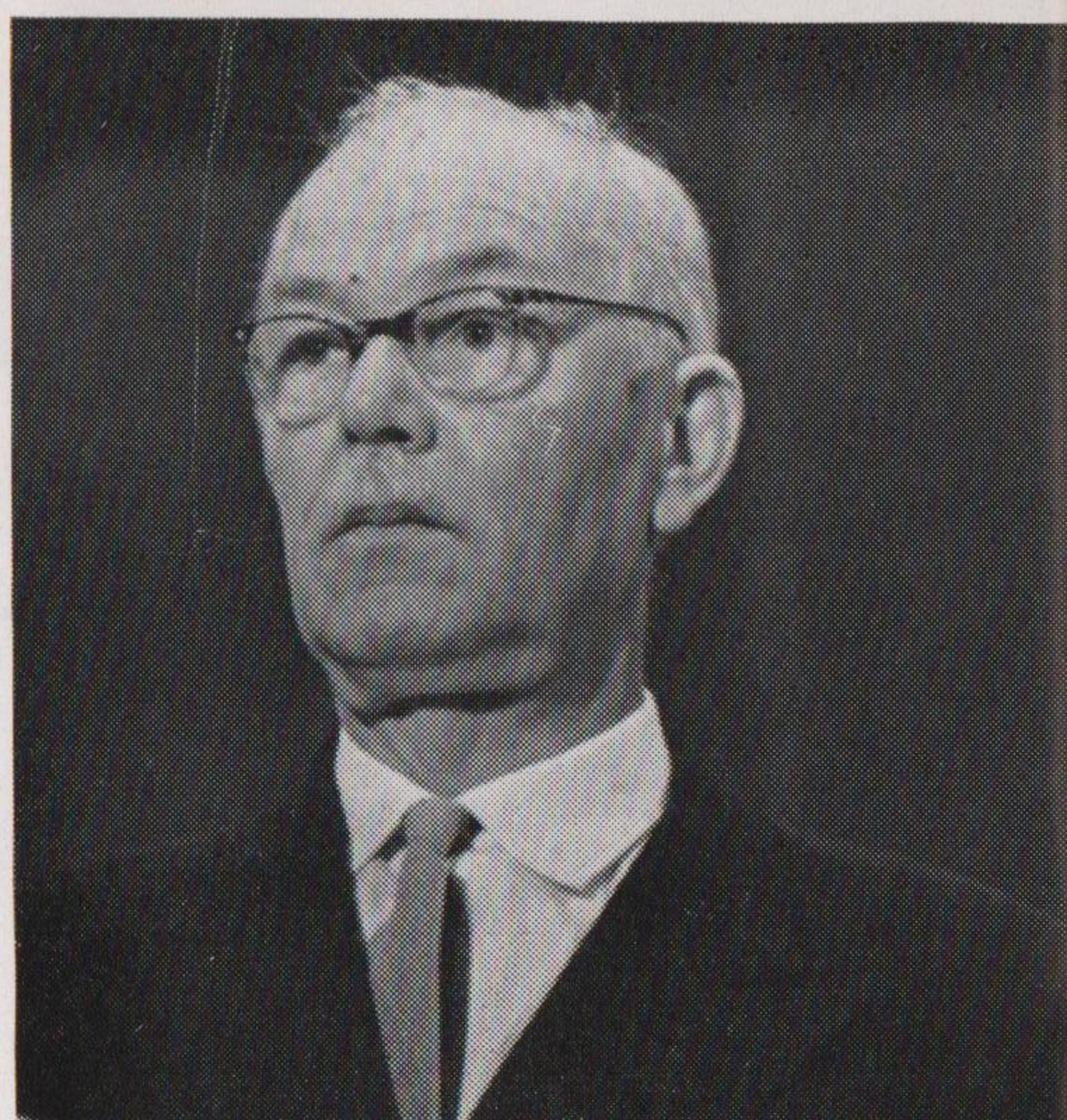




The first man in space—YURI GAGARIN—U.S.S.R.—April 12th, 1961.



Hundreds of thousands of Muscovites surge through the Red Square to pay their tribute to Yuri Gagarin.



Some of the scientists associated with the successful space flight spoke at the Press Conference. Among them were the President of the Soviet Academy of Sciences—Academician A. Nesmeyanov (above), Academician N. Sisakyan (top right), V. Parin of the Academy of Medical Sciences (centre), and Academician E. Fedorov (bottom right).

—for elaborating systems ensuring safety in flight and the recovery of the space-ship.

The scientists evolved special apparatus for automatically and continually supervising the physiologically important factors of environment and the organism's functional reactions. As is known this apparatus was successfully tried out aboard the Sputnik-space-ships on previous cosmic flights.

In this manner was the way paved medically and biologically, for the forthcoming manned space flight.

Still, the task of the team that got the astronaut ready was a thorny one, without precedent in the past. However, despite its complexity it was considerably facilitated by the wonderful creative work of the astronaut himself, who became a real research worker and co-author in the common effort of a large team of scientific workers. The elaboration of methods for objectively supervising the state of the human being was a special task. The scientists succeeded in working out a composite system for supervising the state of physiological functions, especially breathing and blood circulation, both before the take-off and during the flight itself.

The problem of training the astronaut before the take-off fell into a category of its own. Enhanced medical supervision, a special diet and the systematic investigation in ground laboratories by means of the methods intended for the flight, all guaranteed a unity and sequence in obtaining extremely valuable scientific data and also enabled us to derive the necessary points of departure for further analysing phenomena characteristic of the reactions of the human organism while in flight.

The records of action potentials of the brain and muscles, detailed electrocardiographic and vectorcardiographic investigations and many other studies provided the required volume and profundity of the watch kept on the health of the astronaut immediately before take-off. Concurrently, he was kept under a constant medical and psychological surveillance, and biochemical and immunological tests were made as well as tests to ascertain his nervous and emotional condition.

Throughout his flight Yuri Alexeyevich Gagarin was under a continuous medical supervision. In addition to the messages he regularly radioed back about his condition, the physicians and physiologists employed radio telemetry systems to keep records of heartbeat and respiration of the first man in space.

The extensive experience accumulated by biological telemetry—a new science embodying the latest achievements of medicine and electronics—was placed in the service of mankind on April 12th, 1961. It is hard to over-estimate the role of objective biotelemetry data in

safeguarding the safety of that outstanding flight. Built into the space-suit of the astronaut were simple and convenient sensors which converted the physiological parameters—action potentials of the heart, pulse oscillations of vascular walls, and respiratory movements of the chest—into electric signals. Suitable amplifiers and measuring systems fed into the radio channels the impulses that characterised respiration and blood circulation in all the stages of the flight.

As follows from the preliminary data obtained from the telemetered records, Gagarin's flight proceeded most successfully from the medical point of view. Pulse-rate and respiration during the powered leg of the flight and descent changed approximately as much as during the many pre-flight tests. Heartbeat and respiration decreased to normal when the astronaut had entered the weightless state.

Thus, the first practical application of biotelemetry to medical surveillance during a manned space flight proved most successful. This is an indication that our scientists working in this field have been following a correct road which promises further successes.

In conclusion, it should be noted that history's first manned space flight has brought in extremely valuable data about a man's condition in space and confirmed the forecast of Soviet scientists not only about the possibility of manned space flight, but also about the possibility for a man to preserve his creative abilities and diverse work activity there.

A great role in this achievement was played by the scientists and workers; a great and heroic role was played by the remarkable Soviet man Yuri Gagarin, his friends, his wife and relatives.

Statement by Y. K. Fyodorov

What has been related here is only the first account of Y. A. Gagarin's flight. The corresponding reports and other scientific materials will be published later.

All present here will, till the end of their days, remember this meeting with Yuri Alexeyevich Gagarin, the first cosmonaut. The world admires his courage and expresses profound respect for his skill, for the way he brilliantly coped with the hitherto unknown and difficult task of the first flight into outer space.

Though Y. A. Gagarin was all alone in outer space, his exploit personified the vast effort of a large team of factory workers, engineers and scientists who designed the space-ship and made it fly.

When the first Soviet Sputnik was orbited, some people abroad, including perhaps some of you, representatives of the Western press present here, were of the opinion that this was a result of an individual isolated technical achievement of the Soviet Union. Today no one

supports this idea. During the short period which has elapsed since the first Sputnik's flight, it has become clear to all that the Soviet Union's achievements in outer space are a natural stage in the development of the socialist country's science and engineering.

The Central Committee of the C.P.S.U., the Presidium of the Supreme Soviet of the U.S.S.R. and the U.S.S.R. Council of Ministers in their appeal stressed that the Soviet people regarded the victory in space exploration not only as their achievement, but as that of the whole of mankind.

"We are happy to place it at the service of all nations, for the sake of progress, happiness and the good of all people on Earth. We put our achievements and discoveries not at the service of war but at the service of peace and the security of the peoples." You probably remember that the orbiting of the first Sputnik did not induce the Soviet Union to claim any special rights in outer space. The landing of a Soviet pennant on the Moon did not lead to any lunar territories being secured for the Soviet Union.

Our scientists report on the results they have attained at numerous international conferences, discuss them with their colleagues from all countries of the world. Even now a group of Soviet scientists together with Academician Blagonravov are taking part in a scientific session of the International Commission on Space Research, all of whose participants are rejoicing together with us over this new grand victory won by human genius.

And this first flight of man into outer space, too, the Soviet people contribute to the treasure house of mankind's scientific achievements.

The present rate of scientific and technical progress is remarkable. It should, however, be realised that this rate will gain further momentum.

The thoughts of scientists are centred on further flights into outer space, on the research of the Moon and the planets, on delving into the innermost secrets of the structure of matter, on the fundamentals of the vital processes. And at the same time we distinctly see how much disorder there still is on our Earth. Is it not a disgrace for mankind that people are still starving in some areas of our planet? This is a bitter reproach to those who ravaged and ruthlessly exploited and in some places to this day continue to exploit countries which are backward in their development.

When flying over Africa, Comrade Gagarin saw the Congo where only recently Lumumba, this valiant champion for the happiness of the Congolese people, was foully murdered.

Soviet scientists know that such a state of affairs on the Earth causes

anxiety among honest people throughout the world. The development of science and engineering opens up unlimited opportunities for mastering the forces of nature and it is our job, our common concern to utilise them for the well-being of man. To achieve this, it is necessary above all to ensure peace.

Today, when the new victory of man's genius is being marked, we Soviet scientists ask that all of you, representatives of the press and especially representatives of the Western press, bring home to their readers, bring home to all the people on Earth, the solemn appeal of the Communist Party of the Soviet Union and the Soviet Government to the whole world. The appeal that all people, irrespective of race or nationality, colour, religious creed or social status, spare no effort to ensure a lasting peace. A real and speedy road to a lasting peace has been known for long: this is general and complete disarmament under strict international control. The solution of this basic task would make it possible for all peoples on Earth to use their energy for space research as well as for other endeavours really worthy of man.

* * *

After these statements questions sent in by those at the press conference are answered.

The majority of questions, explains Academician A. N. Nesmeyanov, who is in the chair, are addressed directly to Y. A. Gagarin. I shall reply to those few questions which may concern me.

It is asked in a number of notes whether there were preliminary attempts to send a man into space. Incidentally, reference is made to reports in the foreign press.

I reply: no such attempts were made. Yuri Alexeyevich was the first, and his attempt was crowned with success.

The following question has been put: For a long time scientists differed as to whether it was really necessary to send a man into space. Can this concrete example prove that there was such a necessity?

Of course, if we were content with photographs, let us say, for instance, of the reverse side of the Moon, then perhaps this question could be answered in the negative. However, the very presence of numerous foreign correspondents here in Moscow proves that ordinary photographs are not enough and people prefer to see things with their own eyes.

Then there is a question: Nikita Sergeyevich Khrushchov in his speech said that Yuri Gagarin's flight was the first Soviet swallow in outer space. When can the next one be expected? And what is the explanation why the Soviet Union is ahead of the United States in space research?

Probably there are many reasons, just as in every complex phenomenon. Remember that Tsiolkovsky also lived in the Soviet Union. He was the first one, already in pre-revolutionary Russia, to advance the theory of space flights. However, I consider that the main reason lies in the possibility of organising scientific-technical work in a socialist state with much greater expediency than in a society founded on private property where there are numerous conflicting interests. Let's restrict ourselves to these two reasons.

Yuri Alexeyevich Gagarin replies to questions

I have received many questions on how the descent took place. Allow me to reply to all of them at once.

The landing technique in our country was elaborated in different versions, including the parachute version as well. The following system was resorted to in this flight: the pilot was in the cabin, and the descent was successful, testifying to the great efficiency and the excellent operation of the whole system of landing.

Question: Will the photos of the Earth's surface taken from the *Vostok* be published?

Answer: The *Vostok* did not have a camera or photographing device; no photographs were taken and hence there is nothing to publish.

Question: Were you particularly hungry or thirsty during the flight?

Answer: I did not feel any special hunger or thirst during the flight. When it was time to eat according to the programme, I had the very same feeling as here, on Earth.

Question: When were you told that you were the first candidate?

Answer: I was informed in good time that I was the first candidate. I had plenty of time to prepare thoroughly.

Question: What is your appraisal of the role of radio communications in this historic flight; how is the voice from Earth heard in outer space?

Answer: I appraise the role of radio communications very highly during this flight. I had the opportunity of constantly being in touch with the Earth, of receiving orders, of transmitting information from the ship on the operation of all the systems, of transmitting observations, of feeling the constant support of our people, the Government, the Communist Party, of not being alone during the flight.

Question: Did the ground team arrive before or after the landing?

Answer: The landing and the arrival of the ground team took place almost simultaneously.

Question: What is your weight?

Answer: Before the flight I tipped the scales at 69.5 kg. (152.9 lb.). This is my present weight as well.

Question: What was the length of descent?

Answer: The length of descent is shown by its duration. The braking installation was switched on at 10.25, and the landing took place at 10.55. The distance correspondingly was several thousand kilometres.

Question: Did you make preliminary flights on ballistic rockets?

Answer: No, I did not.

Question: If you, a family man, the father of two children, were sent into space, then this means that the Government and you were confident in the favourable outcome of the flight?

Answer: In this question I would like to replace the word "sent" with the word "entrusted". And I am very glad and proud of this trust. And as far as confidence is concerned that everything would operate smoothly and the flight would be successful, nobody had any doubts whatsoever: neither our Government, our scientists, our engineers, nor I myself.

Question: What did you eat during the flight? Was this ordinary food or something specially prepared for nourishment under conditions of weightlessness?

Answer: This was special food prepared by the Academy of Medical Sciences.

Question: Did you take with you any mementoes such as photos of your dear ones, or any talismans into outer space?

Answer: I can assure you that I do not believe in any omens or talismans, or other such things. I had no photos with me as I knew for certain that I would return to Earth and see my near and dear ones with my own eyes on Earth.

Question: Can the space-ship or any part of it be used once more?

Answer: This question is more within the competence of our technicians and engineers. However, I think that I would not be wrong in saying that the entire space-ship and its equipment could be used for another flight into outer space.

Question: You reported that passing over South America your flight was normal and you felt well. As an inhabitant of South America I would like to ask you if our continent is beautiful from the altitude of space flight?

Answer: Very beautiful.

Question: Yesterday you said that your fellow space pilots were ready to take part in a new space flight. How many of them are there? More than a dozen?

Answer: Our country is training space pilots in accordance with its space exploration programme. I think there are enough men to carry out serious space flights.

Question: Did you carry out the whole programme drawn up by the scientists? Could you have carried out a larger programme without difficulty?

Answer: I carried out the whole of my programme. As to the other part of the question, I think the programme was drawn up so that it could be fulfilled, and I did everything I had to.

Question: Do you think that a flight along a similar orbit lasting several hours or even days would be of any physiological or psychological inconvenience to the pilot?

Answer: Judging by how I felt in orbit I draw the conclusion that, subjectively speaking, I could have remained in flight much longer than I actually did.

Question: Did your flight serve to confirm you in your political convictions? Does it confirm the idea expressed by you that it is necessary to achieve total and controlled disarmament? Why?

Answer: I find it difficult to add anything to that question and I fear that I cannot put it so well and vividly as Academician Fyodorov did. I think he gave a complete answer to this question.

Question: Did the actual conditions of your flight differ from those that you imagined? If they did, in what way?

Answer: In one of his books K. E. Tsiolkovsky gave an excellent description of the factors of space flight, and the factors I encountered hardly differed from those described by him.

Question: Could you describe your feelings when you returned from space to your native soil?

Answer: It is hard to express the feelings I felt at the time. These were joy, pride and happiness. Happiness because I had fulfilled the task entrusted to me, because the flight had been carried out by the Soviet Union and its scientists, because our foremost science had made another step forward.

Question: What are your wages? Did you receive any special reward for the flight?

Answer: My wages, like those of all Soviet people, are quite sufficient to satisfy my needs.

I have been awarded the lofty title of Hero of the Soviet Union. It is the highest award.

Question: Do you think that you will fly a second time or will it be someone else?

Answer: I have already reported to the Party and the Government that I am ready to carry out any new task.

I have received the title of Space Pilot of the U.S.S.R., which makes me eligible for flight into space. I shall be happy and grateful if I am entrusted with the second flight. But I think that we have many space pilots who would like to carry out that flight.

Question: You said that you saw the Earth well. Does this mean that you looked through a window of the space-ship or had a colour television camera?

Answer: I saw it through a porthole in the ship.

Question: When will another flight into space be carried out?

Answer: I suppose a flight will be carried out by our scientists and cosmonauts when the time comes.

Question: Will you be the chairman of the cosmonauts' union?

Answer: I can only say that this doesn't depend on me. If I am elected, I will be.

Question: Could you have travelled to the Moon on the *Vostok* with the present programme?

Answer: The ship *Vostok* was not designed for flight to the Moon. Special ships are being created and will be built for that purpose.

SPEECH BY YURI GAGARIN AT MOSCOW WELCOME MEETING, APRIL 14th, 1961

MY DEAR COUNTRYMEN: DEAR NIKITA SERGEYEVICH: COMRADES, LEADERS OF THE PARTY AND GOVERNMENT: First of all allow me to express my sincere gratitude to the Central Committee of my own Communist Party, the Soviet Government, the whole Soviet people, and to you personally, Nikita Sergeyevich, for entrusting the responsible task of carrying out the first flight into outer space to me, an ordinary Soviet airman.

Before starting out into space my thoughts were with our Leninist Party and our socialist country.

My love for our glorious Party, our Soviet Fatherland and our heroic working people inspired me and gave me the strength needed to carry out this deed.

The genius and heroic work of our people created the space-ship *Vostok*, the most wonderful in the world, and its most intelligent, most reliable equipment. From the launching till the landing I never doubted the successful outcome of the outer flight.

I should like to thank our scientists, engineers, technicians, and all Soviet workers from the bottom of my heart for creating such a vehicle for confidently penetrating into the mysteries of outer space. Allow me also to thank all my comrades and all those who took part in preparing me for my flight.

I am sure that all my fellow space-pilots are ready to fly around our planet at any time.

We can state confidently that we shall fly our Soviet space-ships on more distant routes. I am boundlessly happy that my beloved Fatherland was the first in the world to carry out this flight, was the first in the world to penetrate into outer space. The first aeroplane, the first Sputnik, the first space-ship, and the first space flight are all landmarks on my country's great road towards mastery over the mysteries of nature. Our people are being confidently guided to this goal by our own Communist Party.

At every stage of my life and studies at the vocational school, the industrial technicum, the aero-club, and the Air Force school I always felt the concern of the Party whose son I am.

I should especially like, dear comrades, to stress the tremendous fatherly concern for us, ordinary Soviet people, displayed by Nikita Sergeyevich Khrushchov. You, Nikita Sergeyevich, were the very first from whom I received warm congratulations on the successful completion of my flight only a few minutes after landing, after returning from outer space to our native land.

Many thanks to you, dear Nikita Sergeyevich, from me personally and from my fellow space-pilots! We have dedicated the first space flight to the Twenty-Second Congress of the Communist Party of the Soviet Union.

Heartfelt thanks to you, dear Muscovites, for your big welcome. I am sure that every one of you is ready to perform any exploit in the name of the might and prosperity of our beloved country under the leadership of the Leninist Party, to the glory of our country, to the glory of our people.

Long live our socialist country!

Long live our great mighty Soviet people!

Glory to the Communist Party of the Soviet Union and its Leninist Central Committee headed by Nikita Sergeyevich Khrushchov!

**SPEECH OF NIKITA SERGEYEVICH KHRUSHCHOV
AT A MEETING TO WELCOME THE FIRST SOVIET
COSMONAUT, APRIL 14th, 1961**

DEAR COMRADES: DEAR FRIENDS: CITIZENS OF THE ENTIRE WORLD:
It is with a feeling of great joy and pride that I address you.
For the first time in history a man, our Soviet man, in a ship
created by Soviet scientists, workers, technicians and engineers, tore
away from Earth towards outer space and made the first unprece-
dented trip to the stars.

The space-ship *Vostok* rose to an altitude of more than 300 kilo-
metres, orbited the Earth, and successfully landed in a pre-arranged
area of the Soviet Union.

We ardently hail this remarkable cosmonaut, this heroic Soviet
man, Yuri Alexeyevich Gagarin. He displayed noble moral traits:
courage, self-possession, and valour. He is the first person who for
an hour and a half looked at our entire planet, the Earth, which is
ever in motion, and viewed its tremendous oceans and continents.
Yuri Alexeyevich Gagarin is our pioneer in space flights. He is the
first to have orbited our globe. If the name of Columbus, who crossed
the Atlantic Ocean and discovered America, has lived on through the
ages, what is to be said about our wonderful hero, Comrade Gagarin,
who penetrated into outer space, circled the entire terrestrial globe, and
safely returned to Earth! His name will be immortal in the history of
mankind.

We all understand what a world of thoughts and feelings our first
space traveller has brought back to Earth. Everyone here in this
historical square understands the deep emotion, pride and joy with
which we greet you, our dear friend and comrade.

Permit me on behalf of the Central Committee of the Communist
Party of the Soviet Union, the Soviet Government, and our entire
people to heartily congratulate you and to express our deep gratitude
for your unparalleled feat.

Permit me, also, ardently to hail and congratulate the scientists,
workers, engineers and technicians who created the rocket-ship
Vostok, and to congratulate all Soviet people who created the condi-
tions for the successful flight of a manned space-ship to outer space.

We are proud of Yuri Gagarin's feat, we are filled with deep admira-
tion for the scientists, engineers, technicians and workers who devoted
their minds and their hearts to the creation of this ship and to its
amazing flight. The work and feat of millions of workers, collective

farmers, and intellectuals, of the entire Soviet people are combined
in their glorious deeds. By this flight we have once more shown the
entire world what the genius of a free people is capable of.

Now, when Soviet science and techniques have demonstrated the
highest achievement of scientific and technical progress, we cannot
help looking back to the history of our country. In our mind's eye we
cannot help seeing the years that have passed.

After we overthrew the power of the Tsar, the capitalists and the
landlords, we defended our state in the fire of civil war even though
we were often barefooted and without clothes. How many military
strategists there were in those days who predicted the inevitable
defeat of, as they put it, the "barefooted armies". Where are these
ill-starred strategists today?

When we went to our first Communist subbotniks, when we laid
the foundations for new blast-furnaces and built mines, when we
hurled at the whole world the winged words: five-year plan, industriali-
sation, electrification, collectivisation, country-wide literacy, how
many arrogant "theoreticians" there were, who forecast that bast-
shoed Russia could never become a great industrial power! Where
are these sorry prophets today?

We were no simple Ivans who had no ancestors. We used for the
welfare of the people the best that had been created by the most
progressive people. The socialist state made it possible for the dreams
and plans of many scientists, engineers and technicians to be applied
in the wide field of Soviet industrial and collective farm construction.
Under the conditions of Tsarist Russia these people could not even
think of using their minds and hands.

When, today, we stand beside the man who made the first space
flight, we cannot help recalling the name of the Russian scientist and
revolutionary, Kibalchich, who dreamed of flights to space, but who
was executed by the tsarist government. We cannot help recalling
and pay due tribute to the memory of Mendeleev and Zhukovsky,
Timiryazev and Pavlov, and to the many other great scientists whose
names are associated with the outstanding feats of the Soviet people.

It is with special respect that we recall the name of Konstantin
Eduardovich Tsiolkovsky, scientist, dreamer, and theoretician of space
flights.

The dream of conquering outer space is indeed the greatest of man's
great dreams. We are proud that Soviet people have made this dream,
this fairy-tale come true.

The words "Citizen of the Soviet Union" are proud words. There
was a time when people abroad, and even some people in our country,

spoke derisively of us. But it was then that Vladimir Mayakovsky said with pride:

“Read. Envy me,

“I am a citizen

“Of the Soviet Union.”

With what force these words ring out today. With what profound meaning they are filled!

But we are proud not because we deny other nations and countries the right to perform a similar feat. We are internationalists. Every Soviet person is brought up in the spirit of socialist patriotism, and at the same time he is ready to share freely his scientific wealth, his technical and cultural knowledge with all who are ready to live with us in peace and friendship.

Soviet workers, the collective farm peasantry, and the working intellectuals are proud that to us, the working people of former tsarist Russia, fell the great honour of carrying out the October Socialist Revolution under the guidance of Vladimir Ilyich Lenin, the immortal leader of the working class, and the Communist Party.

That was an exploit unparalleled in history. The working class, the people had to display enormous courage and boldness, a profound understanding of their aims and problems in order to perform that exploit. The working class was not daunted by difficulties, however great. It carried out the greatest revolution and assumed power in a country which was economically backward and almost completely illiterate, the people of which were suppressed by tsarism and capitalism.

And in those conditions when, it seemed, there was no time to dream of lofty deeds of the present and the future and it was necessary to think how to end the war and heal the wounds which bled on the body of old Russia, the great Lenin with unswerving assurance spoke of the inevitability of the triumph of socialism and communism. He took steps to end the imperialist war through revolution, through the victory of the working class, the establishment of the dictatorship of the proletariat, and the revolutionary liberation of all the people of our country.

Lenin persistently and tirelessly explained that only when people are completely liberated from capitalist slavery, only when the people are really free, when all the material and spiritual abilities and all forces are channelled to the benefit of the working people, will a new era dawn over mankind.

The great exploit of the working class of Russia and the people of our country who performed the October Socialist Revolution under

the Communist Party will go down in the ages as an inspiring example of the revolutionary creative ability of the people.

Socialism has thrown open to our country boundless scope for development. In forty-three years of Soviet government, formerly illiterate Russia, of which some people spoke disparagingly, regarding it as a barbaric nation, has passed along a magnificent road. Our country was the first to create an orbital space-ship, the first to reach outer space. Is this not a brilliant demonstration of the genuine freedom of the freest of all free people on Earth, the Soviet people?

Having created all the conditions for the launching and successful landing of the space vehicle, we have shown what a nation is capable of when it becomes genuinely free and unfettered both politically and economically. The truly free countries are not those where the rich freely exploit those who lack a crust of bread and call that the “free world”, but those countries where all men and women of labour, all peoples have the opportunity of enjoying all material and spiritual benefits.

Our conquest of space is an outstanding milestone in the development of mankind. This victory is another triumph of Lenin’s ideas, a confirmation of the correctness of Marxist-Leninist teaching. This triumph of human genius is an embodiment and graphic expression of the glorious results of everything achieved by the peoples of the Soviet Union in the conditions created by the October Socialist Revolution. This exploit marks a new upsurge of our nation in its onward movement towards communism.

With pride and unshakable assurance we declare to the world that, having successfully completed the building of socialism begun in 1917 by the October Revolution, we are confidently and boldly forging ahead along the road indicated by the great Lenin, towards communism. We say that there is no force in the world capable of diverting us from our course. The victory will be ours, and it will be the most noble, the most brilliant victory. It will not mean the dominance of one group of people over another, the dominance of one country over another country or group of countries, of one nation over another, it will be to the benefit of all people on earth.

The movement of the peoples towards communism, the noble aspirations of men and women towards that great goal cannot be belittled or retarded. This movement has acquired tremendous invincible force and there exist no obstacles capable of halting that great process of human development. The Soviet people, the socialist nations, the peoples of the whole world, including the peoples of those countries who have not yet gained their victory and are stubbornly struggling for the triumph of progress over exploitation and oppression,

will win and erect the lofty edifice of communism. And this will be a great boon to humanity, the pinnacle of its development.

Comrades! On this occasion we hail the scientists of the world to whom the space flight is a cause of great joy and happiness. Soviet science is developing in close connection with the whole of world science.

The flight of the space-ship *Vostok* is, so to say, the first Soviet swallow in outer space. It soared aloft in the wake of our many Sputniks and probes. It represents a natural outcome of the titanic scientific and technological work carried out in our country for space conquest.

We shall continue this work in the future. More and more Soviet people will fly along unexplored routes into outer space and probe the mysteries of nature still further, placing them at the service of man and his well-being, at the service of peace.

We stress: at the service of peace! Soviet people do not want rockets, which fulfil man-made programmes with such amazing accuracy, to carry lethal cargoes.

We once again appeal to the governments of the world: science and technology have progressed so enormously and are capable of creating such devastation if subjected to an evil will, that it is necessary to take all possible steps towards disarmament. General and complete disarmament under the strictest international control is the way towards the establishment of a lasting peace among nations.

When we launched our first Sputnik some none-too-clever people in the country on the other side of the ocean refused to believe it. Well, there are such near-sighted and hidebound people. But now we can actually touch a person who has returned to us straight from the sky!

Allow me once again to embrace you, our dear Yuri, and to convey through you our heartfelt greetings to your associates in your work and your exploit. (*Nikita Sergeyeovich Khrushchov embraces Comrade Gagarin and kisses him. Stormy applause sweeps the square. Cries can be heard of: "Long live the Communist Party!", "Glory to Gagarin!", "Hurray!"*.)

You have glorified the Union of Soviet Socialist Republics. The Fatherland will never forget your exploit and will preserve your name in the annals of its history.

We are proud that the world's first cosmonaut is a Soviet man. Yuri Alexeyevich grew up and was educated in a Soviet school, he participated actively in public life and was an active Komsomol member. He is a Communist, a member of the great Party of Lenin!

It is a pleasure for me to inform you that the Presidium of the Supreme Soviet of the U.S.S.R. has awarded you the high title of Hero of the Soviet Union.

You are also the first to receive the distinguished title of "Pilot Cosmonaut of the U.S.S.R."

A bronze bust of the hero will be set up in Moscow and a special medal will be issued to commemorate the world's first manned space flight.

I warmly congratulate Yuri's parents, Anna Timofeyevna and Alexei Ivanovich Gagarin, on having brought up such a fine son who has glorified our country by his exploit.

I express warm congratulations to Yuri Alexeyevich's wife, Valentina Ivanovna, a fine Soviet woman. She knew that Yuri Alexeyevich was departing into outer space but did not dissuade him. On the contrary, she gave her heart's blessing to her husband, the father of two little children, to his great exploit.

Remember that no one could guarantee completely that the parting with Yuri Alexeyevich before his space flight would not be the last one in his life. Her courage and realisation of the tremendous importance of that unparalleled flight reveal the great soul of Valentina Ivanovna.

She is a true Soviet woman. Recall with what warmth and love Nekrasov, Pushkin and our other writers wrote of Russian women. Today, such Russian women are all the women of the Soviet Union. Valentina Ivanovna demonstrated her fine character, her willpower and her understanding of Soviet patriotism.

Comrades! The people of the Soviet Union are celebrating a new victory, a victory of labour, science and thought. It was achieved by the peoples of our country as a result of stubborn intense work. Soviet people have passed a great road of struggle for the progress of the national economy and the development of technology and science and have reaped worthy fruit by gaining priority in the launching of a manned space-ship. This immortal exploit, this outstanding deed will live through the centuries as the greatest accomplishment of the human race.

But success should not weaken our will, persistence and effort in further raising the economy and developing science and technology. The tasks of creating the firm material and technical base of communism charted by the Twenty-First Party Congress are stupendous. They are of tremendous historic importance. By fulfilling the seven-year plan and achieving, as a result, a new upsurge of the whole of our economy, science and technology, we shall make it possible to surpass the economic level of the most developed capitalist country, the United States of America, and multiply our superiority in the development of science and technology.

Implementation of the seven-year plan will bring us closer to the

time when we shall step beyond the farthest point reached by the capitalist world and shall surge ahead in the development of our economy and in satisfying the needs of the people, just as we have now surged ahead into outer space. The material and cultural requirements of Soviet people will be satisfied more fully than in the most developed countries of the capitalist world.

That is why, comrades, new great accomplishments should not weaken our will, our desire to utilise to the utmost all our possibilities in advancing science and technology. We must place everything at the service of the people so as to successfully solve the problem of the further development of the industry and the whole of the country's economy put forward by our Party.

The tasks confronting the Communists and Komsomol members of the countryside, the men and women of the collective farms, the workers of the state farms, everyone engaged in agriculture, are especially great. We must raise agriculture to a level where it will always be abreast of industry.

Spring is a decisive time in agricultural work. In this third year of the seven-year plan we must especially demonstrate our abilities in boosting agriculture. All farm workers must spare no efforts in making agriculture meet to the full the growing requirements of the people.

Comrades! There are many wonderful pages in the historic annals of our country. They are inscribed by the work, the inspiration, the talent, the persistence and the courage of millions of Soviet people.

Long live and flourish our wonderful Soviet people, the builders of a new life, the builders of communism!

Long live and flourish our socialist Fatherland, the country in which the great October Revolution launched a new era in the development of humanity!

Glory to the great leader and founder of the Communist Party and the socialist Fatherland, Vladimir Ilyich Lenin!

The genius of Lenin illumines our road to communism, inspires us to new exploits in the name of peace and the happiness of all mankind!

Long live the peoples of the Soviet Union, the builders of communism!



Yuri Gagarin's wife looks on as her husband and N. S. Khrushchov look through newspaper accounts of the exploit during the press conference. Mrs. Khrushchov sits on the right.

At a reception in the Kremlin on April 14th, 1961, Yuri Gagarin receives the highest honours his country can bestow—the Order of Lenin and the Gold Medal of a Hero of the Soviet Union—from the Soviet President, Leonid Brezhnev.





Two views of the Red Square crowd. Those above carry portrait banners of Lenin and Gagarin.

The Globe in flowers, with Gagarin's path marked out with a slogan and surmounted by the dove of peace, was one of the symbols carried through the square.

On the right: Students and teachers of the Lumumba Friendship University in Moscow celebrate the event. Gagarin had just passed over nearly all their countries.



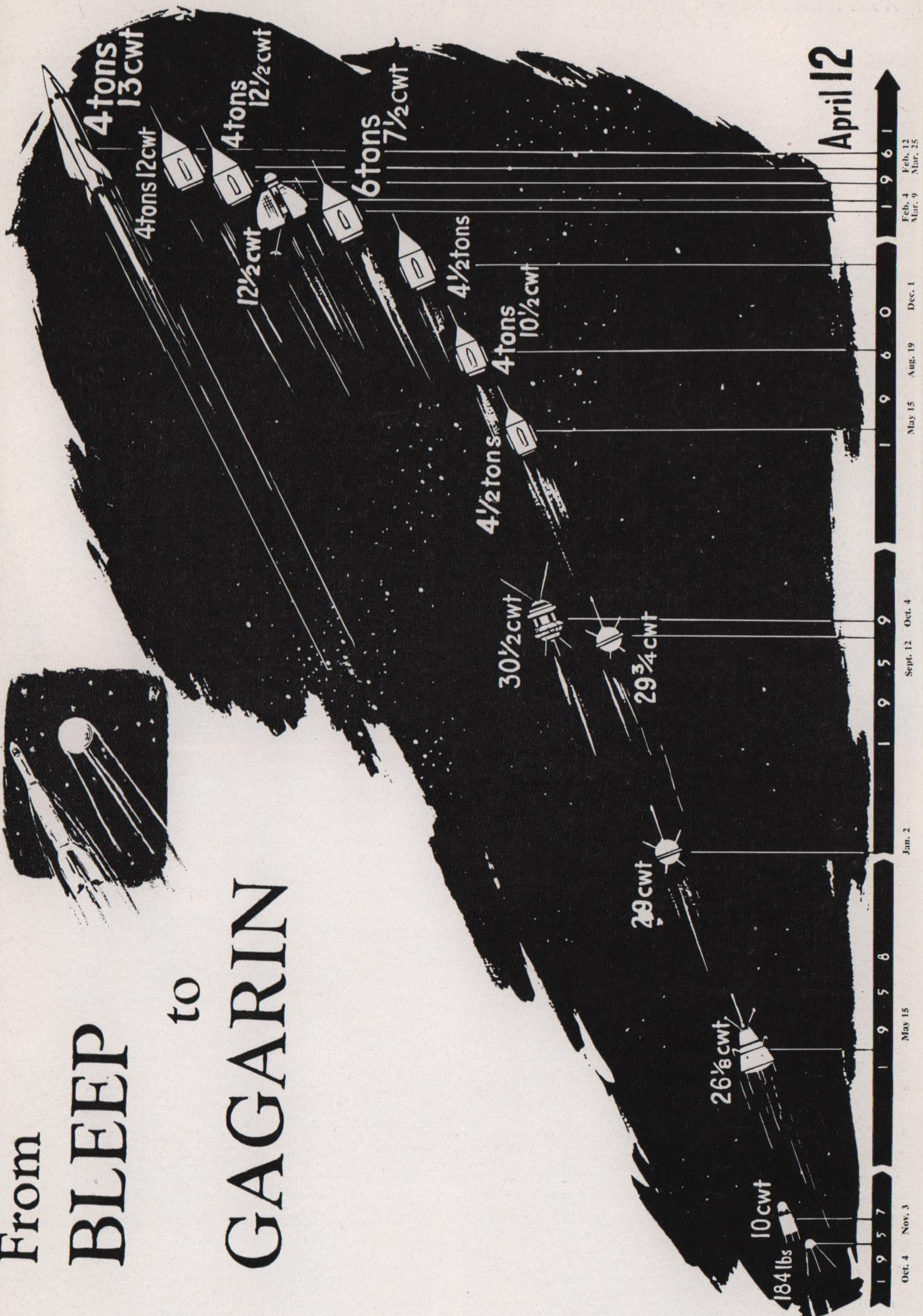


Yuri's family. Left to right: brother Boris and his wife Aza; brother Valentin; sister Zoya; cousin Antonina; Tamara—Zoya's daughter (Yuri's niece). Centre: Yuri's father, Alexei Ivanovich Gagarin. Below: Yuri, his wife Valentina, and daughter Lena.

Four photographs of Yuri Gagarin. Top left: as a schoolboy. Top right: as a student at the Orenburg Aviation School in 1956. Bottom right: as a steel-worker (moulder) at the Lyubertsy trade school, near Moscow. Bottom left: in a flying-suit shortly after landing from his space flight.



From
BLEEP
 to
GAGARIN



RECEPTION IN THE GRAND KREMLIN PALACE
ON APRIL 14th, 1961

THE CENTRAL COMMITTEE of the Communist Party of the Soviet Union, the Presidium of the Supreme Soviet of the U.S.S.R. and the Council of Ministers of the U.S.S.R. held, on April 14th, 1961, a reception in the Grand Kremlin Palace in honour of the outstanding exploit of the scientists, engineers, technicians and workers who had ensured the success of the world's first manned flight into outer space, in honour of Yuri Alexeyevich Gagarin, the world's first cosmonaut.

The Georgiyevsky Hall was filled with those who through their intellectual effort and skill built the space-ship *Vostok*, with the Members of the Presidium of the U.S.S.R. Supreme Soviet, Ministers of the U.S.S.R. and R.S.F.S.R., Chairmen of State Committees, members and alternate members of the Central Committee of the C.P.S.U., Marshals of the Soviet Union, leaders of Party and Government organisations of Moscow and Moscow Region, representatives of the working people, eminent scientists, artists and cultural workers, and representatives of public organisations.

Shortly before the beginning of the reception N. S. Khrushchov, the Hero Cosmonaut Yuri Gagarin, his wife Valentina, and his father and mother entered the Grand Kremlin Palace, and proceeded to the Georgiyevsky Hall, where they were greeted with prolonged stormy applause.

The Decrees of the Presidium of the U.S.S.R. Supreme Soviet conferring on Yuri Gagarin the titles of Hero of the Soviet Union and Pilot-Cosmonaut of the U.S.S.R., were read. A thunderous "hurrah" and stormy applause broke out in the Georgiyevsky Hall and the orchestra played a march.

Presenting the Order of Lenin and the Gold Star Medal of the Hero of the Soviet Union to Yuri Gagarin, L. Brezhnev said that he was glad to carry out this pleasant mission. Brezhnev also pointed out that Gagarin had accomplished an extraordinarily great exploit and that this exploit was a symbol of everything bright and noble that communism brings to the Soviet people.

"I am infinitely touched by the attention of our Party, our Government and all the Soviet people," Yuri Gagarin said, in reply. "I am proud of what I did for the glory of the Soviet people."

The gathering was addressed by N. S. Khrushchov. He said that the Soviet people are proud of Yuri Gagarin's unprecedented exploit. This exploit shows the grandeur and flourishing of Soviet science and engineering. N. S. Khrushchov declared that this exploit does not lead

to the domination of one country over any other country. It is designed for peace. Only universal and complete disarmament can ensure peace throughout the world, the head of the Soviet Government said and added that the U.S.S.R. would gladly sign an agreement on disarmament and thus put an end to the arms race.

The head of the Soviet Government expressed conviction that the time of interplanetary travel was not far off. He proposed a toast to the triumph of human reason and genius, to Yuri Gagarin, the first Pilot-Cosmonaut, to the scientists, engineers, technicians and workers, thanks to whose efforts the space-ship for a fully-manned flight was built, successfully launched and safely returned to Earth.

The Swedish Ambassador, Rolf Sohlman, the doyen of the diplomatic corps, sincerely congratulated N. S. Khrushchov, Chairman of the Council of Ministers, and the whole Soviet people on the tremendous achievement of Soviet science and technology.

N. S. Khrushchov stressed that this first space flight belongs to the whole of mankind.

The head of the Soviet Government announced that all who participated in creating the orbital space-ship *Vostok* will be cited for high Government awards. He proposed a toast to those who created the orbital space-ship.

All the speeches made at the reception were interrupted by stormy applause.

The Soviet people regard the new victory in space conquest not only as their own achievement, but also as an achievement of all progressive mankind. The Soviet people are happy to place this victory at the service of all nations in the name of progress, happiness and the benefit of all people inhabiting our planet.

DECREE OF THE PRESIDUM OF THE SUPREME SOVIET OF THE U.S.S.R.

On conferring the title of Hero of the Soviet Union on the Soviet Pilot Major Y. A. GAGARIN, the World's First Cosmonaut

FOR the heroic exploit of the first space flight, which has glorified our socialist Fatherland, for the manifestation of courage, daring, fearlessness and selfless devotion to the Soviet people, the cause of communism, the cause of the progress of all mankind, to confer the title of Hero of the Soviet Union with the Order of Lenin and the Gold Star Medal on the world's first cosmonaut, Major Yuri Alexeyevich Gagarin, and install a bronze bust of the Hero in the city of Moscow.

L. BREZHNEV,
President of the Presidium of the Supreme Soviet of the U.S.S.R.

M. GEORGADZE,
Secretary of the Presidium of the Supreme Soviet of the U.S.S.R.

The Kremlin, Moscow
April 14th, 1961

DECREE OF THE PRESIDUM OF THE U.S.S.R SUPREME SOVIET

On the Institution of the Title of "Space Pilot of the U.S.S.R."

IN HONOUR of the world's first manned space flight in an orbital ship, to institute the title "Space Pilot of the U.S.S.R."

L. BREZHNEV,
President of the Presidium of the U.S.S.R. Supreme Soviet

M. GEORGADZE,
Secretary of the Presidium of the U.S.S.R. Supreme Soviet

The Kremlin, Moscow
April 14th, 1961

**DECREE
OF THE PRESIDUM OF THE U.S.S.R. SUPREME
SOVIET**

**On conferring the title of "Space Pilot of the U.S.S.R."
on Major Y. A. Gagarin**

TO CONFER the title of "Space Pilot of the U.S.S.R." on citizen of the Soviet Union Major Yuri Alexeyevich Gagarin for carrying out the world's first space flight in the space-ship *Vostok*.

L. BREZHNEV,
*President of the Presidium of
the U.S.S.R. Supreme Soviet*

M. GEORGADZE,
*Secretary of the Presidium of
the U.S.S.R. Supreme Soviet*

The Kremlin, Moscow
April 14th, 1961

Report of first manned space flight

*Published below is the full text of an article in
the Soviet press on the first manned space flight.*

ON APRIL 12TH, 1961, the Soviet Union effected the first manned space flight in history. The space-ship *Vostok*, with Yuri A. Gagarin, pilot-cosmonaut of the U.S.S.R. on board, was put in an orbit of an artificial Earth satellite. The satellite space-ship weighed 4,725 kilograms (over 4½ tons) not counting the final stage of the carrier rocket.

According to clarified data obtained by processing all the measurements, the perigee of the orbit was 181 kilometres (nearly 112½ miles) and the apogee 327 kilometres (203 miles), while the inclination of the orbit itself was 64 degrees 57 minutes.

After its orbital flight the satellite space-ship safely landed in a pre-determined area of our country.

The first space flight of a Soviet man ushers in the era of man's direct breakthrough into the cosmos. It is a major landmark in the history of civilisation. This flight was the fruit of the sweeping, purposeful programme of work which is being conducted in the Soviet Union to conquer space.

The great dream of K. E. Tsiolkovsky, the father of space travel, is coming true: "Man will not remain everlastingly on Earth. In the pursuit of light and space he will at first timidly probe beyond the atmosphere and then conquer the whole of circumsolar space."

Decisive Advance to Conquest of Space

Throughout many thousands of years the enquiring brain of man has been striving to reach into the depths of the universe. This is a manifestation of man's unquenchable thirst for knowledge, his desire to fathom his place in the universe and learn how to govern the laws of nature.

Modern science commands a big arsenal of means for cosmic exploration. The distances already accessible, thanks to these means, run into astronomical figures.

The cosmos is a world of stars, stellar associations and galaxies, of which our solar system is a member. Equipped with the teachings of dialectical materialism, advanced science asserts that there exist a multiplicity of worlds in which the evolution of life, the supreme form of matter, is possible. The genesis of life in the universe is by no means an exceptional phenomenon. One cannot concretely specify where, along with our solar system, there is life today, or what form it has assumed, but it definitely exists.

The appearance of man on Earth marked the beginning of a qualitatively new stage in the Earth's development as a planet. As he took cognition of the laws of nature, man began to remake the Earth and equipped himself with mighty means to combat nature. From the first creation of the stone axe, man has risen to a superlative exploit, the first space flight.

By flying in space man is directly exploring a realm that is new to him. We know that the entry into any new domain results in new discoveries which often cannot be foreseen. For instance, it was only the first Sputniks that enabled us to discover the Earth's radiation belts, as a result of which we have essentially changed our notions of circum-solar space and radiation hazard in space flights.

Today it is hard to estimate the full value of the entire significance of space flights and the prospects that they hold out. However, one thing is clear, and that is that man's breakthrough into space will extend immeasurably the horizons of our knowledge and will enrich science and culture.

Modern science and technology are increasing their rate of advance year by year. We are witnessing today achievements which it was impossible to conceive a mere fifteen to twenty years ago. Undoubtedly, science and technology—including, in particular, space flight technique—will go ahead at an increasingly rapid pace.

We should expect already in the immediate future that space vehicles will be used to solve a number of problems of practical importance. The weather service and ice reconnaissance, the relaying of television and sound broadcasts and a sweeping programme of extra-atmospheric scientific study are only the first steps on this road. They will be followed by manned flights to the Moon, and to the other planets of the solar system, the creation of inhabited inter-planetary stations and man's gradual mastering of life in space, while for the remote future there remains the now seemingly fantastic possibility of establishing contacts with other worlds.

One of the primary problems among the vast number of scientific and technical questions that confronted Soviet scientists and designers in preparing for and effecting the first manned space flight was that

of ensuring the prerequisites for man's safe flight and return to Earth. To solve this scientific and technical problem complex design development had to be conducted and many experimental launchings made.

During the consideration of the possible versions of the first manned flight it was found expedient to effect it in an orbital space-ship, since such a flight directly opens the way for man to outer space. Flight along a ballistic trajectory—which is not, in fact, a space flight and pursues primarily the aims of publicity—was rejected. Therefore it is not accidental that from the very outset Soviet scientists and designers have been directing their efforts to the development of artificial satellites and space-ships of large size and weight. Such was the fundamental line of the development of space flights in the U.S.S.R. Only in this way could the historic task of manned space flight be carried out.

From the second Soviet Sputnik which carried a test animal, the dog Laika, to the orbital space-ship *Vostok*, Soviet scientists and designers have invariably followed this line.

It was necessary to obtain as much information as possible on the work of the structures of space vehicles and their instrumentation, to test the reliability of various control systems in flight. A fundamentally new task was the creation of systems of orientation of orbital space-ships and the solution of the problem of their return to Earth.

To ensure a manned flight of a space-ship it was also necessary to ensure the maintenance of normal pressure, temperature and composition of the air and other conditions for man's vital activities.

Apart from solving fundamental problems of space physics, the scientific investigations of outer space provided the necessary data on the effect of various types of radiation on the living organism in space flight conditions and on the meteor hazard in flight. On the basis of the data obtained measures were taken to protect orbital ships against radiation.

The wealth of experimental data obtained as a result of the flights of the first Soviet orbital ships and the development of systems ensuring their safe return to Earth enabled Soviet scientists and designers to embark upon the creation of a ship for a manned flight into outer space. As a result of strenuous work on a large scale the space-ship *Vostok* was built. In March 1961 the last two control launchings of this ship were effected. During these launchings a dummy was put in the pilot's seat. Besides, the cabin contained test animals, the dogs Chernushka and Vzyozdochka.

The flights were effected in accordance with the programme designed for the ship's first flight with a man aboard. Both flights proceeded strictly in accordance with the set programme and confirmed the high degree of reliability of the design and all the systems of the ship.

The careful preliminary testing of the orbital ship *Vostok* ensured the complete success of its very first launching with a cosmonaut aboard, which took place on April 12th, 1961.

Design of the Space-ship "Vostok"

The design of the space-ship *Vostok* is based on experience obtained in the launchings of the first Soviet orbital space vehicles.

The satellite space-ship consists of two main compartments:

The pilot's capsule, with its accommodation for the pilot, the life-sustaining installations and the landing system.

The instrument section with the instruments working during the orbital flight, and the vessel's retro-engines.

After orbiting, the space-ship separates from the last stage of the carrier rocket. In flight its instruments work according to a special programme which ensures taking orbital measurements, transmitting to Earth telemetric information and the televised image of the pilot, two-way radio communications with the Earth, maintenance of the required temperature in the ship and air-conditioning in the pilot's cabin. The instruments are controlled automatically by means of programming devices in the space vehicle or, if necessary, by the space pilot himself.

The programme of the first manned flight was devised for one revolution round the Earth. However, the design and equipment of the space vehicle allows for longer flights.

When the flight programme is completed, a special system orientates the vehicle in space for descent. Then, at a specific point in the orbit, the retro-engine is switched on, which reduces the vehicle's velocity to the calculated value. As a result, the vehicle enters into its descent trajectory.

The capsule with the space pilot is decelerated in the atmosphere. The re-entry trajectory is chosen so that the deceleration load on entering the dense layers of the atmosphere will be no greater than the loads permissible for man. When the capsule reaches a specified altitude, the landing system is switched on. The actual landing of the capsule takes place at a low speed. The vehicle travels some 8,000 kilometres (more than 4,900 miles) from the moment the retro-engine is switched on till the moment it touches the ground. The descent stage lasts approximately thirty minutes.

The shell of the pilot's capsule is covered with a heat-shield which protects it from burning up during its flight through the dense layers of the atmosphere. The shell of the capsule has three portholes and two rapid-action hatches. The portholes are provided with heat-

resistant glass, making it possible for the pilot to conduct observations throughout the entire flight.

The space pilot occupies an ejector seat, in which he remains during the whole of the flight and which enables him to leave the vehicle should the need arise. The seat is so installed that the load during the orbiting and re-entry stages acts on the pilot in the most favourable direction (chest-back).

In the first flight the pilot wore a protective space-suit safeguarding his life and ensuring his working ability even if the hermetic sealing of the cabin broke down in flight.

The satellite space-ship also carried the following systems:

Instruments and equipment necessary for the vital functions of the human body (an air-conditioning system, a pressure-control system, food and water, a system for removing the body's waste products).

Flight-control equipment and a system of manual control of the vehicle (the pilot's panel, an instrument board, a manual-control system, etc.).

A landing system.

Radio apparatus for communications with the Earth.

An autonomous system recording the work of the instruments, the radio telemetric systems and various sensors.

A television system for observing the pilot from the Earth.

Instruments for recording the physiological functions of the body.

The retro-engine of the vehicle.

An orientation system.

A flight-control system.

Radio systems for orbital measurements.

A temperature-control system.

Electricity supply sources.

On the outside surface of the vehicle are mounted the control units, orientation elements, shutters of the temperature-control system, and the aerials of the radio systems.

The pilot's cabin is much roomier than the pilot's cabin in an aircraft. The instrumentation of the cabin is designed so as to ensure the greatest convenience for the pilot in flight. From his seat the space pilot can perform all the necessary operations connected with observation, communication with the Earth, and flight control and, if necessary, for controlling the vehicle without leaving his seat.

The frame of the pilot's seat carries:

A detachable back with a safety-belt to hold the pilot in position when catapulting and parachuting.

Parachute systems.

Catapulting and pyrotechnical devices.

An emergency store of food and water, and equipment and radio means for communication and direction finding for the space pilot to use after landing.

A space-suit ventilation system and a parachute oxygen supply unit.

Automatic operation of the seat.

The space pilot can land in the cabin of the vehicle. This method of landing was tested in the fourth and fifth Soviet satellite space-ships with test animals in the cabin. A variant is also provided for in which the pilot is catapulted with the seat from the cabin at an altitude of some 7 kilometres (about 4½ miles) and is landed by parachute. This variant was also tested in orbital space-ship launchings.

The air-conditioning system in the space vehicle maintains normal pressure and normal oxygen content, a carbon-dioxide content of not more than 1 per cent, a temperature of 15 to 22 degrees centigrade, and a relative humidity of 30 to 70 per cent. Regeneration of the air—absorption of carbon dioxide and water vapour and injection of the necessary quantity of oxygen—is effected by means of highly-active chemical compounds. The regeneration process is automatically controlled. If the amount of oxygen drops and the concentration of carbon dioxide increases, a special sensor gives a signal which alters the operation of the regenerator. If an excess of oxygen is produced a mechanism automatically reduces the amount of oxygen injected into the air of the cabin. The humidity of the air is controlled in a similar way.

A system of special filters is designed to purify the air in case of contamination by harmful admixtures resulting from the functions of the pilot's body and the work of the instruments.

The required temperature is maintained by a special temperature-control system. A specific feature of this system is the use of a constant-temperature liquid-cooling agent to transfer the heat from the pilot's cabin. The cooling agent flows through the temperature-control system to a liquid-gas radiator. The flow of air through the radiator is regulated automatically, depending on the temperature in the descending vehicle. The required temperature is thus maintained with great accuracy.

To keep the temperature of the cooling agent at the required level

and to ensure the necessary temperature in the instrument section, an automatic radiation heat exchange with a system of shutters is placed on the outside surfaces.

For landing in a designated area the vehicle must be carefully orientated in space before the retro-engine is fired. This is carried out by an orientation system. In the present flight one of the axes of the vehicle was orientated in relation to the Sun. A series of optical and gyroscopic sensors act as the sending elements in this system. Signals from them are fed to an electronic pack where they are transformed into commands governing the control systems. The orientation system ensures with great accuracy the automatic finding of the Sun, adjustment of the vehicle accordingly, and its stabilisation in the required position.

When the vehicle is orientated the retro-engine is fired at a specified moment. The commands for switching on the orientation system, the retro-engine and other systems are issued by an electronic programming device.

The space-ship carried radiometric and radiotelemetric equipment for orbital measurements and controlling the work of the instrumentation. Trajectory measurements and the reception of telemetric information during the flight are carried out by ground stations in the Soviet Union. The data is automatically relayed along communication lines to computing centres where it is processed by electronic computers. As a result, orbital information is constantly available throughout the flight and it is possible to forecast the further movement of the ship.

The vehicle also carries a signal radio system working on a frequency of 19.995 megacycles per second.

A television system transmits to the Earth images of the pilot and makes it possible to carry out visual observations of his condition. One television camera transmits a full-face view and the other a side-view of the pilot.

Two-way communication with the Earth is ensured by a radio-telephone system working on short waves (9.019 and 20.006 megacycles per second) and ultra-short waves (143.625 megacycles per second).

The F.M. channel is used for contact with ground stations from a distance of 1,500 to 2,000 kilometres (about 930 to 1,240 miles). Communications in the short-wave channel with ground stations located in the Soviet Union can, the experiment has shown, be carried out from the great part of the orbit.

The radio-telephone system includes a tape recorder for recording the pilot's speech in flight and subsequent reproduction and trans-

mission when the vehicle passes over ground-receiving centres. The space pilot is also provided with a key for telegraph communication.

The instrument panel and pilot's dashboard in the cabin are designed for controlling the work of the main systems and ensuring, if necessary, manual-controlled descent of the vehicle. The instrument panel carries a number of dials, light signals, an electric clock, and a globe which revolves synchronically with the vehicle's motion in orbit. The globe enables the pilot to determine his position in flight. The pilot's dashboard carries levers and switches for operating the radio-telephone systems, regulating the temperature in the cabin, and also for switching on the manual controls and retro-engine.

In designing the space-ship special attention was paid to ensuring safety of flight. The launchings of the first Soviet space-ships had confirmed the highly-reliable work of their apparatus and equipment. Nevertheless, in the spaceship *Vostok* a number of additional measures were taken to preclude the possibility of any accidents and to guarantee the safety of a manned flight. This trend was in full accordance with the basic task—the elaboration of craft enabling man to penetrate outer space with confidence.

In order to orientate the ship when steered manually the cosmonaut uses an optical orientation device to determine the position of the ship in relation to the Earth. This optical device is installed on one of the portholes of the cabin. It consists of two annular mirror-reflectors, a light filter and a latticed glass. The rays travelling from the line of the horizon strike the first reflector and passing through the glass of the porthole reach the second reflector, which directs them through the latticed glass to the eyes of the cosmonaut. If the ship's bearings in relation to the vertical axis are correct, the cosmonaut sees the horizon in the form of a circle in his field of vision.

Through the central part of the porthole the cosmonaut sees the part of the Earth's surface directly below him. The position of the ship's longitudinal axis in relation to the direction of flight is determined by watching the "run" of the Earth's surface in the pilot's field of vision.

With the help of the control units the cosmonaut can turn the ship in a direction ensuring that the line of the horizon is visible in the orientation system in the form of a concentric circle, and that the direction of the Earth's "run" coincides with the course plotted on the latticed glass (chart). This will be proof of the correct orientation of the ship. The pilot's field of vision can be covered by the light-filter or a shutter, if necessary.

A globe installed on the instrument panel makes it possible, in addition to ascertaining the ship's bearings during the flight, to pre-determine the landing place if the braking device is switched on at

any moment during the flight. Finally, the design of the ship allows for landing even if the braking device should fail—with the help of the natural frictional action of the atmosphere.

The supplies of food, water, regeneration substances and the capacity of the electric energy sources are calculated for a flight of up to ten days.

The design of the ship includes devices preventing the temperature of the cabin rising above a definite level in case of the prolonged heating of its surface which occurs during the gradual braking of the ship in the atmosphere.

Medical-Biological Problems of a Manned Space Flight

In solving the problem of the possibility of a manned space flight and its medical safety, it was found necessary:

- (1) To study the influence of the factors of a space flight on the organism, and also to study possible ways and means of protection against the harmful action of these factors;
- (2) To elaborate the most effective methods of ensuring normal conditions for the life of the man in the cabin of the space-ship;
- (3) To work out the methods of medical selection and training of the members of the crews of space-ships, and also a system of uninterrupted medical control of the pilot's health and capacities throughout the flight.

Each of these questions entailed a large number of particular problems, on the study and solution of which specialists in the fields of physiology, hygiene, psychology, biology, and clinical and professional medicine worked uninterruptedly in the course of ten years. Research was carried out in laboratories on Earth and during the flights of animals in rockets. The rich experience accumulated in the fields of applied physiology and medicine, particularly the medicine of aviation and underwater swimming, was taken into account. Wherever possible special stands were set up for the laboratory study of the action of space flight factors on the organism. The influence of various strains and the organism's reaction to them were studied in centrifugal machines which reproduced accelerations analogous to those occurring during the periods of boosting and recovery.

With the help of vibro-stands, thermo-and vacuum-chambers and similar units, the action of other factors on the organism was studied. However, the laboratory experiments, as a rule, could furnish answers only with regard to the action of any particular one of these factors on the organism, whereas during a real flight in a rocket these factors act simultaneously and in combination. Besides, the behaviour of living organisms in the condition of weightlessness could not be studied in

the laboratory. Therefore, the biological research carried out with the help of rockets, beginning with 1951, brought us considerably nearer to a study of the influence of the conditions of space flight on the organism.

Several dozen experiments were made on animals which ascended to altitudes of up to 450 km. (about 280 miles) in rockets. As a result, comprehensive scientific data were accumulated, describing the action of the physiological systems and the behaviour of the animals (dogs, rabbits, rats and mice) at different times during the flight. A careful examination of the test animals both during the flight and during a prolonged period after their return to Earth allowed us to draw the conclusion that living organisms withstood the conditions of flights in rockets to the upper layers of the atmosphere quite satisfactorily. The changes observed in some of the physiological functions during the flight were not of a morbid nature; quite often they disappeared while the experiment was still in progress, and did not reappear subsequently.

However, owing to the short duration of rocket flights there was no possibility of studying the biological effects of such important factors of space flight as prolonged weightlessness and cosmic radiation. Therefore, the opportunity of using artificial Earth satellites for biological experiments which became possible in 1957 was an exceptionally important step forward.

The first such experiment was conducted on the second Soviet Sputnik. It not only confirmed but augmented the data on previous biological experiments on rockets. It was proved for the first time that a prolonged state of weightlessness, as such, does not violate the basic vital processes.

Biological experiments were continued in the first Soviet orbital space-ships. The programme of this medical-biological research included a number of new problems. Besides additional and a more thorough study of the influence of prolonged weightlessness on the organism, of great importance was the study of the transitional condition from weightlessness to overstrain and *vice versa* and thorough research into the biological effects of cosmic radiation.

An important part of the programme was also the study of the peculiarities of the operation and effectiveness of systems which in future flights should ensure normal conditions for man's vital activity and guarantee his safe return to Earth. In carrying out the planned programme, diverse representative specimens of the organic world, from the simplest forms of life up to higher vertebrates, were placed in the first Soviet orbital space-ships.

The utilisation of various species of animals and plants for experiments made it possible to study very thoroughly and in great detail the influence of the conditions of space flight on the most diverse

processes and functions of organisms. Data on the behaviour and physiological functions of experimental dogs during flights were especially widely provided. The behaviour of animals was observed with a special television system. An analysis of the data obtained showed that the animals not only fully retained their vital activity under conditions of the protracted effect of weightlessness and the following influence of overstrain, but that no morbid symptoms were discovered in the condition of their main physiological functions. A sufficiently prolonged and careful investigation of the animals after flight also did not reveal any deviation whatsoever from the normal.

Particularly serious attention was devoted to detecting any possible effects of cosmic radiation during the flight of an orbital space-ship. The numerous methods used for solving this problem did not reveal changes which could possibly have been caused by ionising radiation.

The results of the medical-biological research conducted in orbital space-ships made it possible to draw exceedingly important and crucial conclusions. It was acknowledged that flights in orbital space-ships, admittedly circling lower than the radiation belts nearer to the Earth, are safe for highly organised representatives of the animal kingdom. The results of the biological experiments were used for solving the problem of safe manned flight.

These, along with laboratory investigations, led scientists to the conclusion that man's flight into space would not be detrimental to his health.

The first space flight could only be performed by a man who, realising the tremendous importance of the task set him, had consciously and voluntarily agreed to give all his strength and knowledge, and perhaps even his life, to the accomplishment of this outstanding exploit. Thousands of Soviet citizens, patriots of their country, of widely varying ages and professions expressed the wish to make the flight into outer space. Soviet scientists were instructed to carry out a scientifically well-founded selection of the first cosmonauts from among the vast number of applicants.

In the course of a space flight man is subjected to the influence of a whole complex of environmental factors (acceleration, weightlessness, etc.) and a considerable nervous and emotional strain calling for the mobilisation of all his moral and physical abilities. Along with this, the cosmonaut must retain a high degree of working ability and be able to orient himself in the complicated conditions of the flight and, if need be, take part in controlling the space-ship. All this determined the high demands made on the cosmonaut's health, his psychological qualities and the level of his general background and technical proficiency.

These qualities are most fully combined in pilots. Work as a pilot already determines the stability of a man's nervous and emotional sphere and his strong will-power, which is of particular importance in the first space flights. In the future the range of persons taking part in such flights must undoubtedly be broadened considerably.

In recruiting the group of cosmonauts, there were talks with a great number of pilots who had expressed the wish to make a space flight. Those of them who were most suitable were subjected to a careful clinical and psychological examination. The purpose of this examination was to determine the state of health, reveal the latent deficiency or reduced resistance of the organism to individual factors characteristic of the future flight, and ascertain their reactions to the action of these factors.

The examination was carried out with the use of a number of modern biochemical, physiological, electro-physiological and psychological methods and special functional tests making it possible to assess the reserve possibilities of the main physiological systems of the organism (investigations in the pressure chamber at considerable degrees of rarefaction of the air, during abrupt changes in the barometric pressure and the breathing of oxygen at increased pressure, investigations in the centrifuge, etc.).

An important stage came with the psychological investigations designed to seek out persons possessing an especially retentive memory, resourcefulness, an agile mind that can easily switch attention from one thing to another, and the ability to make precise and co-ordinated movements quickly.

As a result of the clinical-physiological examination a group was formed who set about carrying out the programme of special instruction and training on special stands and devices simulating conditions of a space flight on the ground and in the air. Simultaneously the individual peculiarities of the organism's reaction to the effect of simulated factors were ascertained.

The programmes of special instruction were designed to supply the cosmonauts with the necessary information on the basic theoretical questions connected with the forthcoming flight, as well as practical skills in the use of the equipment and instrumentation of the space-ship's cabin. This programme provided for the study of the fundamentals of rocket and space techniques, the design of space-ships, and special problems of astronomy, geophysics and space medicine.

The programme of special training and tests included:

Flight in planes in zero-gravity conditions;

Training in the replica of the space-ship's cabin and on a special training device;

Prolonged spells in a specially-equipped sound-proof chamber;

Training in the centrifuge;

Parachute jumps from planes.

In the process of special training certain problems of ensuring manned space flight were also solved, in particular those connected with the feeding of the cosmonaut in flight, his space suit and the system of air regeneration.

During the flights in planes the individual reactions of the cosmonauts during weightlessness and transition from weightlessness to overstrain were studied. The possibility was studied of maintaining radio communication, taking water and food, etc. This provided answers to some important questions about man's possible actions in space flight conditions.

It was found that all the cosmonauts who had been selected endured zero-gravity well. Besides, it was established that in a state of weightlessness lasting for up to forty seconds they could normally take liquids, semi-liquids and solid food, perform subtle co-ordinated acts (writing, purposeful movements of the hands), maintain radio communication, read and orient themselves visually in space.

Training in the replica of the space-ship's cabin and in the special training device was designed to enable the cosmonauts to study the equipment and instrumentation of the cabin, practise the versions of the flight task and accustom themselves to staying in the cabin of the actual space-ship. For this purpose a special training rack was created with electronic devices, the changes taking place during real flight, being simulated on the instruments. The pilot acted just as he would in space. An opportunity was provided of simulating unusual (emergency) versions of the flight and training the cosmonaut to act in such circumstances.

The main task of investigations conducted during the prolonged stay in the specially-equipped sound-proof chamber was to establish the nervous-psychological stability of the cosmonaut during a prolonged solitary spell in the isolated, closely-confined cabin, with a considerable reduction of external irritants. In the course of this training the routine and feeding process of a real flight were simulated.

A wide range of physiological tests and special psycho-physiological methods made it possible to single out the individual possessing the best characteristics for accuracy and for precision in fulfilling assignments, and also those possessing a stronger nervous and emotional system.

Training on the centrifugal machine and in the thermal chamber tested the cosmonauts' endurance of corresponding effects, the influence of these effects on the basic physiological functions was studied, and

questions concerning increasing the stability of the organism as regards surroundings were decided. As a result of the tests it was established that cosmonauts possess good stability to the influence of these factors and individuals were singled out who stood the tests better than others.

During the course of air-drop training each cosmonaut had to make several dozen jumps. The physical training of the group of cosmonauts consisted of planned sessions and setting-up exercises. The planned lessons were based on the individual features of each cosmonaut's physique. The setting-up exercises, conducted for an hour daily, were aimed at general physical training. The physical culture lessons were directed at improving the stability of the organism to the effects of acceleration, working out and perfecting how to use the body with ease in space, and increasing the ability to endure prolonged physical tension.

Physical training was conducted under constant medical observation and combined specially-selected exercises, games, diving, swimming and exercises on special apparatus.

The direct preparations for the forthcoming space flight were organised when the special training programme had been fulfilled. These preparations included:

Study of flight assignments and the maps of the landing area, instructions in piloting, conducting radio communication, etc.;

Study of the emergency pack, its utilisation on the locality after landing, study of the direction-finding system, etc.;

Training on a centrifugal machine in a space-suit with the maximum load that may be expected;

Long training in a model space-ship with the use of all the life-saving systems.

A group of the best men ready for space flights was picked from among the trainees.

The pilot Major Yuri A. Gagarin was chosen from the group of cosmonauts for carrying out the world's first manned flight into space.

This remarkable Soviet man, Yuri Alexeuevich Gagarin, was born on March 9th, 1934, in a collective farmer's family. It had always been his dream to become a pilot. On finishing the Orenburg Air Force School as a fighter pilot, Gagarin served in one of the units of the Soviet Air Force. At his insistent request he was included in the group of candidates for space flight and passed the tests. Gagarin made the best showing during the training period.

Gagarin fully justified the great confidence placed in him of being the world's first space pilot.

First Space Flight

The *Vostok* space-ship took off at 9.07 a.m. (Moscow time) on April 12th, 1961.

During the entire boost stage, space pilot Gagarin maintained constant communication by radio-telephone with the flight centre on Earth; the cosmonaut felt very well on this section of the flight. He recorded precisely the changes in load and the stages of separation of the rocket carrier. The noise in the ship's cabin did not exceed the noise in the cockpit of a jet plane. Gagarin watched the Earth through the portholes even during the boost stage.

The equipment during the orbital flight, orientation and landing of the ship were effected automatically. However, in case of need, the cosmonaut, at his own discretion or at a command from the Earth, could have taken over the control of the ship, determined his location and made the landing in the selected area.

After the space-ship was put in orbit a state of weightlessness set in. At first this condition was strange for the space pilot, but he soon accustomed himself to it. Gagarin felt fine throughout the entire period of weightlessness and retained full command of his faculties.

In conformity with the assignment and flight programme he kept watch over the functioning of the space-ship's equipment, maintained uninterrupted communications with the Earth by radio-telephone and telegraph, conducted observations through the portholes and the optical orientation device, sent reports to Earth, recorded observation data in his log book and on magnetic tape and took food and water.

The surface of the Earth was clearly visible from up to 300 kilometres (186 miles). Coastal lines, big rivers, terrestrial relief, forests, and clouds and the shadows from them were observed as well. When flying above the territory of our country Gagarin saw the massive expanses of collective farm fields.

The sky was pitch-black. The stars looked brighter and clearer against it than from the Earth. The Earth has a very beautiful pale-blue halo. On the horizon the colours change from a delicate light-blue through ultramarine, dark blue and violet, finally to black sky. When emerging from the shadow, a vivid orange flash, which then passed through all the colours of the rainbow, could be observed on the Earth's horizon.

At 9.51 a.m. the space-ship's automatic orientation system was switched on and, after the ship emerged from the shadow, it orientated the ship on the Sun.

At 9.52 a.m., when flying over Cape Horn, cosmonaut Gagarin sent

one of his reports to say that he was feeling fine and that the ship's equipment was functioning normally.

At 10.15 a.m., the automatic programming control device commanded the equipment in the ship to prepare for the firing of the retro-rocket. At this moment the ship was over the approaches to Africa and another report on the progress of the flight was received from Gagarin.

At 10.25 the retro-rocket was fired and the space-ship veered off the orbit of an Earth satellite on to its descent trajectory.

At 10.35 a.m., the ship entered the dense layers of the atmosphere.

At 10.55 a.m., after carrying out the world's first manned space flight, the satellite space-ship *Vostok* landed in the designated area.

Since his return from space, space-pilot Gagarin has felt well. No disorders in his bodily health has been revealed.

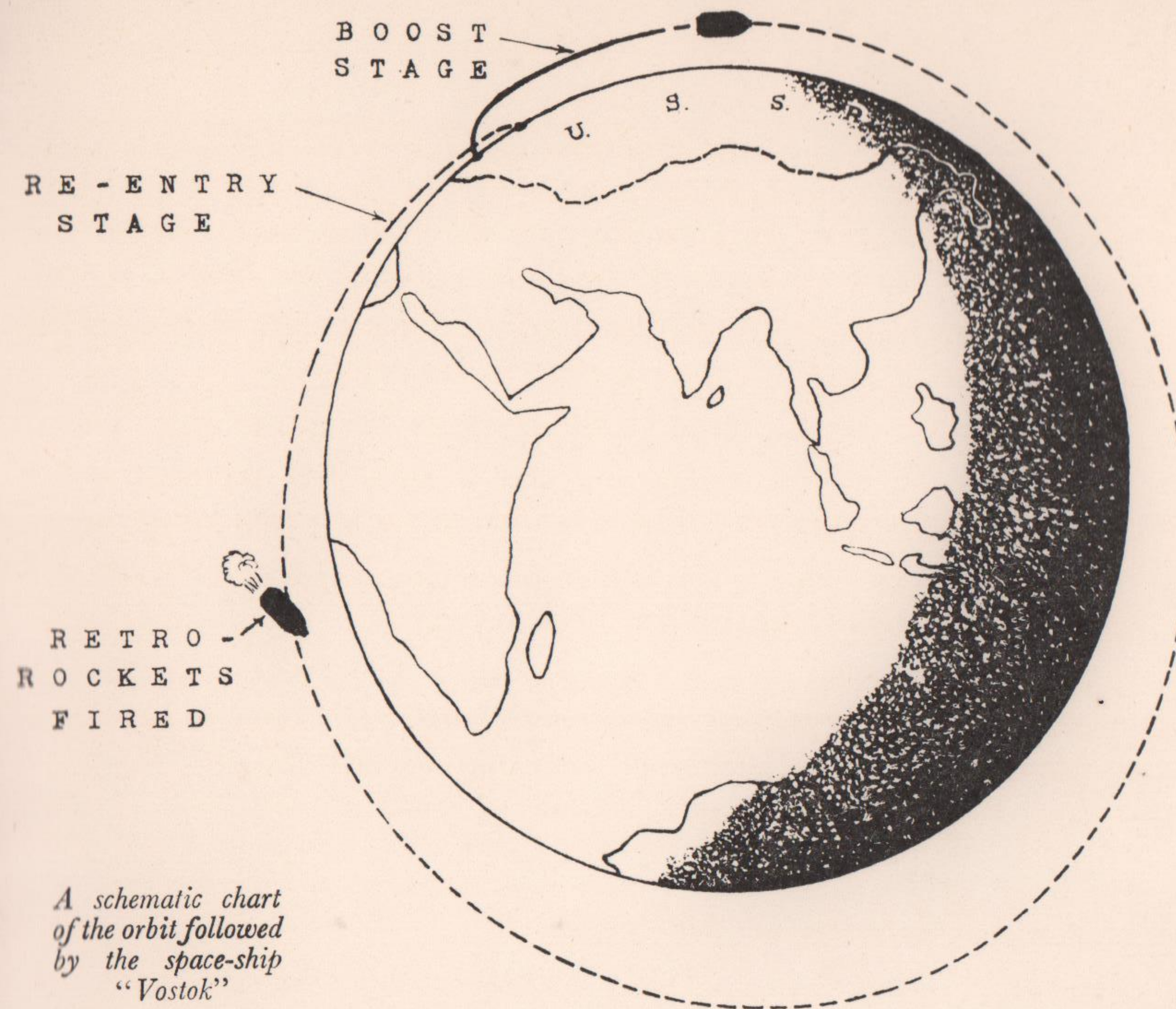
The first space flight in man's history, which Soviet cosmonaut Yuri A. Gagarin effected in the satellite space-ship "Vostok" has made it possible to draw the scientifically vastly important conclusion that manned space flights are feasible. It showed that man can withstand normally the conditions of space flight, being put in orbit, and the return to Earth. The flight showed that in the condition of weightlessness man retains full command of his faculties, can co-ordinate his movements and think clearly.

The flight provided extremely valuable information about the functioning in flight of the structural elements and equipment of the space-ship. The correctness of the scientific and technical solutions, on which the design was based, was fully corroborated. The reliability of the carrier rocket and the perfect character of the design of the Sputnik space-ship were confirmed.

From now on we have the means to effect manned space flights. *The first manned space flight ushers in a new era, the space era, in human history.*

The time has come to fulfil projects that seemed fantastic before—extra-terrestrial scientific observatories and manned space flights to the Moon, to Mars, Venus and the other planets of the solar system.

The new space era in human history is one of the stupendous extension of the domain of the life and activity of man, one of man's conquest of circumsolar space.



A schematic chart of the orbit followed by the space-ship "Vostok"

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